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ABSTRACT

Degree trends in 21 general fields of study and selected majors within the fields are reported for the University of California and California State University. Included are: changes in the number of degrees awarded from 1976-1977 through 1985-1986; the numbers of degrees awarded and percentage changes in specific majors; and changes in men's and women's interests and the increase of women in historically male-dominated specialties and similar data for ethnic minority and foreign students. Detailed descriptions of changes in student degree patterns for 1976-1977 and 1980-1981 and for 1981-1982 and 1985-1986 are reported by discipline, sex, ethnicity, and resident status for both the public universities. Appended are detailed graphic displays for each 5-year period and information on gains and losses for each discipline for men and women, minority and majority students, and resident and foreign students. Findings include: from 1976 to 1985, the number of bachelor's and doctoral degrees increased by 3.5% and 4.7%, respectively, while the number of master's degrees declined by 5.7%; and enrollments shifted away from programs in the humanities, letters, and social sciences and into business, computer science, and engineering. (SW)

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Summary

In 1983, the Commission published *Major Gains and Losses: Recent Shifts in Popularity of Academic Disciplines as Fields of Concentration*, which analyzed trends between 1976-77 and 1980-81 in the number and percentage of bachelor's, master's, and doctoral degrees conferred by California's colleges and universities in various fields of study. This present document constitutes an update of that report for the decade between 1976-77 and 1985-86 at the University of California and the California State University.

Chapter One on pages 7-14 reports changes in the number of degrees awarded by the two universities in 21 general fields of study.

Chapter Two on pages 15-30 describes the number of degrees awarded and percentage changes in selected majors within those fields.

Chapter Three on pages 31-38 discusses changes in men's and women's interests and highlights the dramatic increase of women in historically male-dominated specialties.

Chapters Four and Five on pages 39-48 and 49-57 report similar data for ethnic minority and foreign students, respectively.

The statistical tables on pages 63-85 in Appendices A and B -- the primary source of information used throughout the report -- provide detailed descriptions of changes in student degree patterns between 1976-77 and 1980-81 and from 1981-82 to 1985-86, by field of study, sex, ethnicity, and resident status. Finally, the other materials in the appendices depict various gains and losses for each field between men and women, minority and majority students, and resident and foreign students for both of those five-year periods.

The Policy Evaluation Committee of the Commission discussed this report at its June 8, 1987, meeting. Additional copies of the report may be obtained from the Publications Office of the Commission. Further information about the report may be obtained from Murray J. Haberman of the Commission staff at (916) 322-8001.

MAJOR GAINS AND LOSSES

Part Two

A Staff Report on Shifts Since 1976
in the Popularity of Various Academic Disciplines
as Fields of Study at California's Public Universities

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
Third Floor • 1020 Twelfth Street • Sacramento, California 95814-3985

COMMISSION REPORT 87-26
PREPARED JUNE 1987
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THIS is the fifth in a series of staff reports on important issues affecting California postsecondary education. These reports are brought to the California Postsecondary Education Commission for discussion rather than for action, and they represent the interpretation of the staff rather than the formal position of the Commission as expressed in its adopted resolutions and reports containing policy recommendations.

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Introduction

IN June 1983, the Commission published a report, *Major Gains and Losses: Recent Shifts in Popularity of Academic Disciplines as Fields of Concentration*, which analyzed trends between 1976-77 and 1980-81 in the number and percentage of bachelor's, master's, and doctoral degrees conferred by California's colleges and universities in 24 major fields of study. This present document constitutes an update of that report for the ten years between 1976-77 and 1985-86 at the University of California and the California State University.

Highlights of the report

Trends among disciplines

- From 1976-77 to 1985-86, the number of bachelor's and doctoral degrees awarded by the University of California and the California State University increased by 3.5 percent and 4.7 percent, respectively, while the number of master's degrees declined by 5.7 percent. During those ten years, more disciplines experienced decreases than increases in the number of their bachelor's and master's degrees.

- Over the ten years, University and State University enrollments, like enrollments nationally, shifted away from programs in the humanities, letters, and social sciences and into business, computer science, and engineering. Between 1983-84 and 1985-86, however, they experienced a slight resurgence of student interest in selected majors in the social sciences and the humanities.

- The greatest percentage gains at the bachelor's level occurred in computer science (up 447.8 percent), engineering (113.3 percent), communications (87.5 percent), mathematics (63.7 percent), and business administration (56.0 percent). Within the engineering discipline, the number of bachelor's degrees almost quadrupled in electrical/electronic engineering.

- Among the disciplinary categories, the greatest losses at the bachelor's level occurred in the public affairs discipline (down 45.6 percent), foreign languages (31.6 percent), and fine arts (28.0 percent); but greater losses occurred in such specific majors as Afro-American studies (67.9 percent), anthropology (60.6 percent), and sociology (51.0 percent).

- At the graduate level, the number of engineering degrees conferred by the University and State University has remained relatively constant, while graduate degrees in the computer and information sciences, although few in number, grew by more than 160 percent.

- In 1985-86, 27 percent of the bachelor's degrees awarded by the California State University in 1985-86 were in business and management, compared to only 4.7 percent at the University of California.

- California's two public universities now award almost as many master's degrees in business and management as in education, with the two fields combined accounting for 58.4 percent of all master's degrees.

Trends among men and women

- The number of women receiving bachelor's, master's and doctoral degrees from California's two public universities increased by 18.3 percent, 4.1 percent, and 59.2 percent, respectively, between 1976-77 and 1985-86.

- Women increased their share of total degrees awarded from 46 percent to 52 percent at the bachelor's level, from 46 to 53 percent at the master's level, from 29 to 42 percent at the first professional level, and from 21 to 34 percent at the doctoral level.

- The percentage of bachelor's degrees earned by women in business and management rose from 26 to 49 percent; in computer sciences, from 22 to 34

percent; and in biological sciences, from 36 to 51 percent.

- Women increased their share of doctorates in education from 46 percent to 64 percent.

- The percentage of women entering the high-demand disciplines of computer science, business and management, engineering, and communications is increasing more rapidly than that of men.

- In 1985-86, women received 42 percent of the University's degrees in law, 41 percent of those in medicine, 52 percent of those in veterinary medicine, and 62 percent of those in pharmacy.

Trends among minority students

- Underrepresented minority students (Black, Hispanic, and American Indian) are increasing their participation in many disciplines in which they have traditionally been underrepresented, such as the biological sciences, mathematics, and the physical sciences.

- In 1985-86, business and management, engineering, and the social sciences were the three most popular undergraduate fields for underrepresented minority students -- accounting for 41 percent of all bachelor's degrees awarded to them.

- In 1985-86, the highest proportion of underrepresented minority students -- one out of every five -- earned bachelor's degrees in area studies, foreign languages, or public affairs programs.

- Minority students (both including and excluding Asian students) registered larger percentage increases in bachelor's degrees among the high-growth fields of business, engineering, and computer science than did non-minority students.

- Underrepresented minority students increased their number of master's degrees by 29.6 percent, while all minority students (including Asian) increased their number by 54.0 percent; in contrast to the 5.7 percent decline in master's degrees awarded to all students.

- The number of doctorates awarded to all minority students increased by 38.4 percent, compared to 4.1 percent for all students; but the number awarded to underrepresented minorities (excluding Asian students) dropped by 10.6 percent.

Trends among foreign students

- The number of bachelor's degrees awarded to nonresident aliens by the University and State University increased over the ten years by 44.5 percent, although it decreased by 31.5 percent over the five-year period from 1981-82 to 1985-86.

- The number of master's degrees earned by foreign students increased by 35.5 percent over the decade, and their number of doctorates increased by 25.3 percent; but while their number of master's degrees decreased by 23.2 percent over the latter half of the decade, their number of doctorates increased by 37.0 percent during those five years.

- In 1985-86, California's two public universities awarded 3 percent of their bachelor's degrees, 12 percent of their master's degrees, and 20 percent of their doctorates to foreign students.

- In 1985-86, foreign students in engineering at the University and State University received approximately one out of every seven bachelor's degrees, one out of every three master's degrees, and almost half of all doctorates awarded in this field.

Differences between the 1983 report and this 1987 update

This report differs from the Commission's 1983 report, *Major Gains and Losses*, in two noteworthy ways:

- It covers only the University of California and the California State University, whereas the 1983 report included data on all of California's accredited four-year colleges and universities -- both public and independent; and

- Its classification of disciplines differs from that used in 1983.

The reason for concentrating on the University and State University is that data on them are more complete and considerably more accurate than in the independent sector. Commission staff is working with

representatives of the independent colleges and universities to improve data about those institutions, and the staff expects that future reports will cover them as well.

The difference in disciplinary classifications requires further explanation. In its 1983 report, the Commission employed the 24-category taxonomy used until then by the National Center for Education Statistics of the U.S. Department of Education in its Higher Education General Information Survey (HEGIS). Since then, however, the National Center for Education Statistics has replaced that taxonomy with a 50-category Classification of Instructional Programs (CIP), on which this present report is based. Several reasons prompted the change from the HEGIS taxonomy to the Classification of Instructional Programs -- among them, the fact that the HEGIS taxonomy contained no program definitions or descriptors, which limited the reliability and validity of the resulting data, since program titles alone often do not convey enough information about programs to indicate what degrees should be reported under which heading. Furthermore, the HEGIS taxonomy separated technological from academic degrees but did not define either category. Finally, it either lumped together as "other programs" majors such as laser fusion, particle physics, and energy conservation that today are distinct programs, or else reported them as interdisciplinary majors.

The new Classification of Instructional Programs attempts to alleviate these problems by providing definitions and a more detailed list of student majors and programs. In doing so, of the 50 discipline categories developed, some 30 apply to four-year degree granting institutions.

This conversion from HEGIS to CIP posed one substantial problem for updating the Commission's 1983 report. In order to make meaningful comparisons between data in that document and subsequent data, the Commission staff had to develop a crossover taxonomy that combined several of CIP's 50 categories into classifications comparable to those of the HEGIS taxonomy which was used in the 1983 report. Display 1 at the top of page 4 shows how several CIP categories were combined to reach that end.

The only major inconsistency in this crossover appears in the discipline category of Interdisciplinary Studies. The CIP redistributed several majors in this category to major discipline headings such as engineering or business and management. However, the staff estimates that these transfers alter the total number of degrees conferred in those disciplines by less than 2 percent. Thus the pre- and post-1980-81 data is believed to be at least 98 percent comparable.

Scope and organization of the report

This report depicts degree trends in various fields at the statewide level, but because changes in enrollments and degrees conferred are unique to each campus, these statewide trends should not be perceived as applicable to all campuses.

Chapter One describes changes in the number of degrees awarded by California's two public universities from 1976-77 through 1985-86. Using information provided by the universities via student-specific data tapes, it documents changes in student interest as reflected in percentage increases or decreases in the number of degrees granted in specific disciplines over the course of the decade as well as the percent each of those disciplines represents as a percent of the total number of degrees awarded.

Chapter Two examines the numbers of degrees awarded and percentage changes in specific majors within the University and the State University.

Chapter Three discusses changes in men's and women's interests and highlights the dramatic increase of women in historically male-dominated specialties.

Chapters Four and Five report similar data for ethnic minority and foreign students, respectively.

Finally, the tables in Appendices A and B -- the primary source of information used throughout the report -- provide detailed descriptions of changes in student degree patterns for 1976-77 and 1980-81, and for 1981-82 and 1985-86, by discipline, sex, ethnicity, and resident status, for both the University of California and the California State University.

In addition, the appendices include several detailed graphic displays for both of the five-year periods indicated above, and depicts various gains and losses for each discipline for men and women, minority and majority students, and resident and foreign students.

DISPLAY 1 Conversion of Selected CIP Disciplines to the HEGIS Disciplines Used in this Report

CIP Disciplines	HEGIS Disciplines
Agribusiness and Agricultural Production Agricultural Sciences Renewable Natural Resources	Agriculture
Life Sciences	Biological Science
Business and Management Precision Production	Business and Management
Engineering Engineering and Engineering-Related Technologies	Engineering
Visual and Performing Arts	Fine Arts
Allied Health Health Sciences	Health
Letters Philosophy and Religion	Letters
Parks and Recreation Protective Services Public Affairs	Public Affairs
Liberal/General Studies Multi/Interdisciplinary Studies	Interdisciplinary Studies

Implications of the data

The Commission's data collection and analysis system allows it to document shifts in enrollments and degrees by field of study since 1976-77. Assembled in this manner, the information can be an invaluable tool for programmatic decisions and curriculum and faculty resource planning. During periods of dramatic shifts and fiscal stringency, it becomes an essential instrument for program planning and review. Moreover, beyond its implications for academic planning, it provides an excellent clue regarding the values and goals in society as a whole. It suggests the kinds of careers to which students aspire, the knowledge and skills most in demand, and the varieties of specialized training that colleges and universities are being urged to provide.

As noted above, student interest in high technology and business has continued to increase over the past decade, but the decline in the humanities and social sciences seems to be bottoming out, since slight increases have recently appeared in several of those disciplines that had shown precipitous declines throughout at least the first seven years of the decade. In addition, enrollments became more diversified in terms of ethnicity and foreign students, and more equal in terms of the representation of men and women. Both the number and percent of total baccalaureate degrees earned by minorities and women have increased in the high-demand disciplines of business and management, computer science, engineering, and mathematics, while foreign students lost ground in those same disciplines. At the graduate level, however, foreign students represented significant and growing numbers in these high-demand disciplines -- probably for at least two reasons:

- Many American students perceive that a baccalaureate is sufficient to ensure their employability, especially in engineering, and thus they do not continue into graduate study; and

- Many foreign students have difficulty finding work in high-technology firms, since most of these firms are involved in defense-related work and require their employees to obtain security clearances; and thus these students may seek the doctorate in hope of securing an academic appointment, particularly if they are interested in establishing permanent residency in the United States.

These several enrollment trends present a number of noteworthy implications for public policy regarding degree programs, financial aid, and program review.

Implications for faculty diversity

Currently, the University of California and the California State University estimate a need for some 14,000 new faculty members between now and the end of the century to replace faculty who retire or leave for other reasons, and to hire additional faculty to serve an increasing number of students. Such a large number of openings clearly presents the two universities with an almost unique opportunity to hire greater numbers of women and minorities. Unfortunately, the number of these potential new hires in the high-demand disciplines is limited, since very few American women and minorities are pursuing the doctoral degrees that will qualify them for academic appointments in these disciplines. At the same time, increases in foreign student graduate enrollments in these fields lead to the likelihood that a greater proportion of future faculty will be foreign born. The State has an important need, in cooperation with its two public universities, to design mechanisms that will increase both the number and diversity of native students enrolled in graduate programs and to be assured that foreign-born faculty have adequate facility in English.

In its final report, *The Master Plan Renewed* (July 1987), the Commission for the Review of the Master Plan for Higher Education also identifies these issues. It advocates a statewide program for the "early identification, recruitment, and training of minority and women undergraduate, graduate, and postgraduate students for faculty and academic administrative positions" (p. 23). It also recommends that both the University of California and the California State University "ensure that all faculty and teaching assistants have the necessary instructional skills prior to entering a classroom" by emphasizing "the development of teaching skills for those candidates about to enter the professoriate" (p. 32).

Implications related to student selection of majors

Students choose majors because of many reasons, including their special talents and interests in a given field; but their choices are influenced by economic conditions, job prospects, and students' perception that a degree in a particular discipline will increase their employability. This latter factor is particularly significant for students who rely on loans to complete their undergraduate programs, in that their indebtedness may dissuade them from graduate study and persuade them to enter high-paying fields such as engineering and business in order to pay off their debts.

Some ways to reduce this problem would be to expand grants and part-time employment as alternatives to loans for undergraduates, develop opportunities for graduates to repay their loans through teaching, and increase State financial aid support for women and underrepresented minority graduate students who plan to become college and university teachers.

Implications for reviewing degree programs

The increase of degrees awarded in high-demand disciplines as a percent of total degrees raises questions about the number of degree offerings in less popular disciplines on small campuses. These campuses clearly need to continue to offer courses in those fields, if only as service and support courses for other majors; but their lack of students in some degree programs calls for careful review of these degree offerings in order to determine the possibility of consolidating some programs and retraining and reassigning some of their faculty.

With regard to this issue, the Master Plan Review Commission calls for "rigorous and systematic review of the quality of graduate programs" and the determination of "whether there is a continuing need and adequate resources for both existing and new programs." It directs that programs for which continuing need and adequate resources do not exist "shall be phased out," and it instructs the Postsecondary Education Commission to "advise the segments, the Governor, and the Legislature on segmental compliance with this policy" as well as to "seek private foundation or state support for a blue ribbon commission to study the master's degree in the California State University, the University of California, and the independent institutions" (p. 35).

Possible future analyses

A summary report based on hundreds of pages of quantitative information can call attention to only some of the broader trends and developments reflected in the data. It cannot hope to identify those patterns that result from changes in institutional policy rather than student choice, and it cannot account for all the shifts within the same general field – such as the increase of 355.5 percent in bachelor's degrees in applied mathematics over the past five years, compared to only 58.6 percent in general mathematics.

With the information currently available in computer files, these and a variety of other topics can be investigated in detail. It is possible, for example, to assess program vitality, examine enrollment patterns in relation to the size and location of campuses, and analyze thoroughly shifts in degrees conferred by age, sex, and ethnicity. Thus while this update describes several interesting recent curricular developments, subsequent reports can be expected to analyze additional enrollment and degree trends of significance, and they will include data on trends in accredited independent colleges and universities as well as public institutions.

1 Trends in Degrees

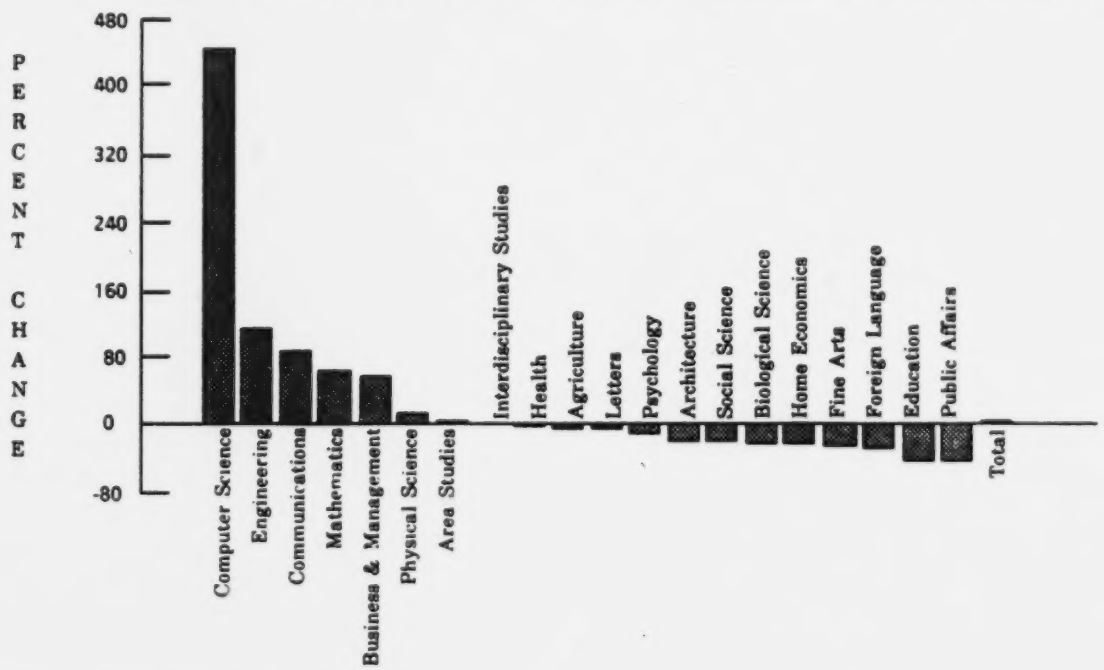
OVER the ten-year period from 1976-77 through 1985-86, the nine campuses of the University of California and the 19 campuses of the California State University awarded nearly 640,000 baccalaureate degrees and over 150,000 master's and 20,000 doctoral degrees. During that time, their number of bachelor's and doctoral degrees increased by 3.5 percent and 4.7 percent, respectively. In contrast, their number of master's degrees decreased by 5.7 percent.

By themselves, these ten-year totals do not suggest extensive changes in student enrollment and degree patterns, but a closer look at the number of degrees awarded by level and subject area discloses a number of significant shifts.

Bachelor's degrees

Display 2 below, based on data from Appendix A, shows the changing nature of undergraduate interests by depicting the percentage change in the number of bachelor's degrees awarded by the University of California and the California State University in 20 subject areas over this past decade. It demonstrates that a substantial shift toward computer science, engineering, and business administration occurred, accomplished in a large measure at the expense of the humanities, social sciences, and other liberal arts programs. As it indicates, nearly twice as many fields experienced decreases in the number of bachelor's degrees as enjoyed increases. Within the seven programs showing increases, the high-

DISPLAY 2 *Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Subject Areas by the University of California and the California State University, 1976-77 to 1985-86*



Source: California Postsecondary Education Commission.

technology programs of computer science and engineering clearly predominated, and of the other five, all but area studies are increasingly technological in orientation. In contrast, the fields experiencing the greatest losses were public affairs, education, foreign languages, and fine arts.

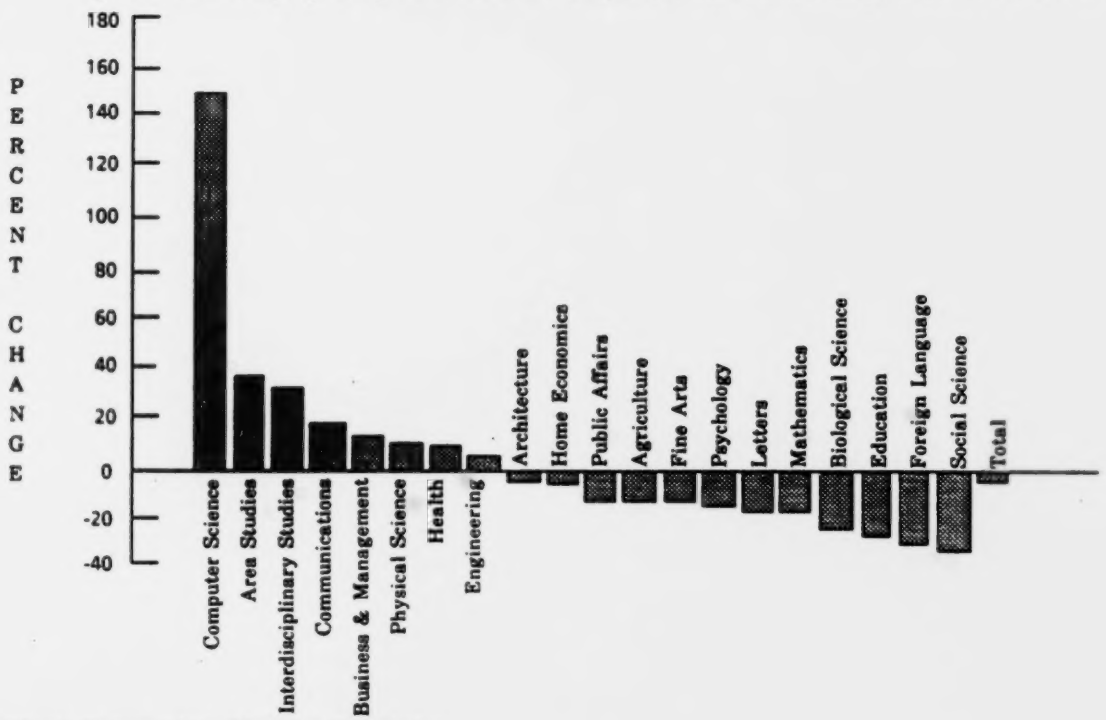
Although the high-technology and business disciplines showed marked increases throughout the past decade, there have been several marginal shifts in those disciplines that experienced losses during the first half of the decade as compared to the latter half, as the displays in Appendix A show. Between 1976-77 and 1980-81, the most noteworthy decreases were in area studies, biological sciences, social sciences, foreign languages, and public affairs. Between 1981-82 and 1985-86, however, public affairs, area studies, agriculture, education, and architecture experienced the greatest declines.

Master's degrees

At the master's level, Display 3 shows that gains were distributed over a wider range of fields -- eight rather than six -- but these were still outnumbered by the other 12 that absorbed losses. Notably, mathematics, which registered a strong increase at the baccalaureate level, declined slightly at the master's level. The total number of master's degrees decreased slightly and appeared to do so at the expense of those fields that increased.

In comparing the gains and losses in master's degrees by subject area between the 1976-77 to 1980-81 period and the 1981-82 to 1985-86 period, several notable shifts are evident from the displays in Appendix A. During the first five years of the decade, eight of the 20 fields experienced increases, compared to only five during the second half. Architecture, physical science, home economics, business and management, and public affairs all experienced in-

DISPLAY 3 *Percentage Change in the Number of Master's Degrees Awarded in 20 Subject Areas by the University of California and the California State University, 1976-77 to 1985-86*



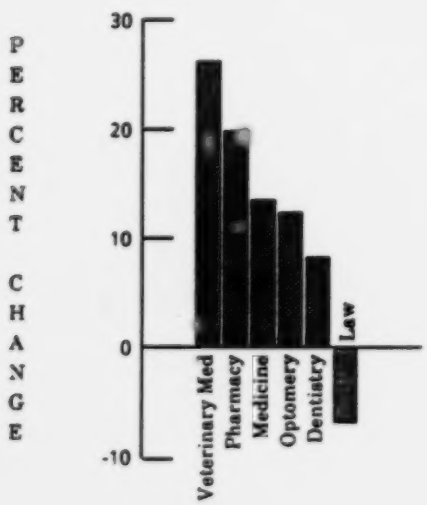
Source: California Postsecondary Education Commission.

creases during the first half-decade but decreased during the second half. Conversely, communications and mathematics, which experienced declines during the first five years, noted increases during the latter five years.

First professional degrees

The number of first professional degrees awarded by the University of California has increased the past ten years in five professions but declined in law, as Display 4 below shows. The most significant change has been the increased representation of women in all fields -- altogether, a 13 percentage-point increase from 29 to 42 percent. (Display 5 at the top of page 10 shows that women's only declines occurred in optometry between 1976-77 and 1980-81, and in dentistry and veterinary medicine between 1980-81 and 1981-82.) By 1985-86, 41.5 percent of all law degrees awarded by the University (including those from Hastings College of the Law) went to women; as did 41.0 percent in medicine, 52.0 percent in veterinary medicine, and 62.4 percent in pharmacy.

DISPLAY 4 Percentage Change in the Number of First Professional Degrees Awarded in Six Professions by the University of California, 1976-77 to 1985-86



Source: California Postsecondary Education Commission.

Doctorates

Display 6 on page 10, based on the displays in Appendix B, provides information about doctorates similar to that in Displays 2 through 4 for bachelor's, master's, and first professional degrees. Like bachelor's degrees, the number of doctorates awarded by the University increased over the ten-year period. Furthermore, ten disciplines showed net gains in the number of doctorates, while only seven experienced losses. Yet like the bachelor's and master's degree changes, the discipline experiencing the largest percentage increase -- albeit with a modest base -- was computer science. With this exception and apart from the notable gains in health, the relative increases in the number of doctoral degrees conferred were rather evenly distributed among the other eight disciplines that increased, while losses tended to be concentrated in business and management, letters, and fine arts.

Despite these overall trends, several disciplines experienced marked shifts between the first half and latter half of the decade. For example, from 1976-77 through 1980-81, public affairs experienced the second greatest increase in doctoral production of all disciplines, but between 1981-82 and 1985-86 it underwent the greatest decrease. Likewise, education showed a slight increase in the first half of the decade but experienced about a 10 percent decline over the past five years, suggesting a lessening demand for such a degree from public institutions. (The Commission's recent report, *The Doctorate in Education: Issues of Supply and Demand in California* (1987), provides a detailed discussion of this issue.)

Changes in the proportional distribution of degrees conferred

Display 7 on pages 11-12 illustrates these trends somewhat differently by listing for each of the five years and for all three degree levels the number of degrees awarded in each field, together with each field's percent of total degrees conferred. The final column of this display shows that while some areas of study experienced dramatic changes, over the 1976-77 to 1985-86 period, most area's share of degrees remained relatively stable. Among the more notable, the social sciences declined at all three degree levels and, in doing so, posted the greatest

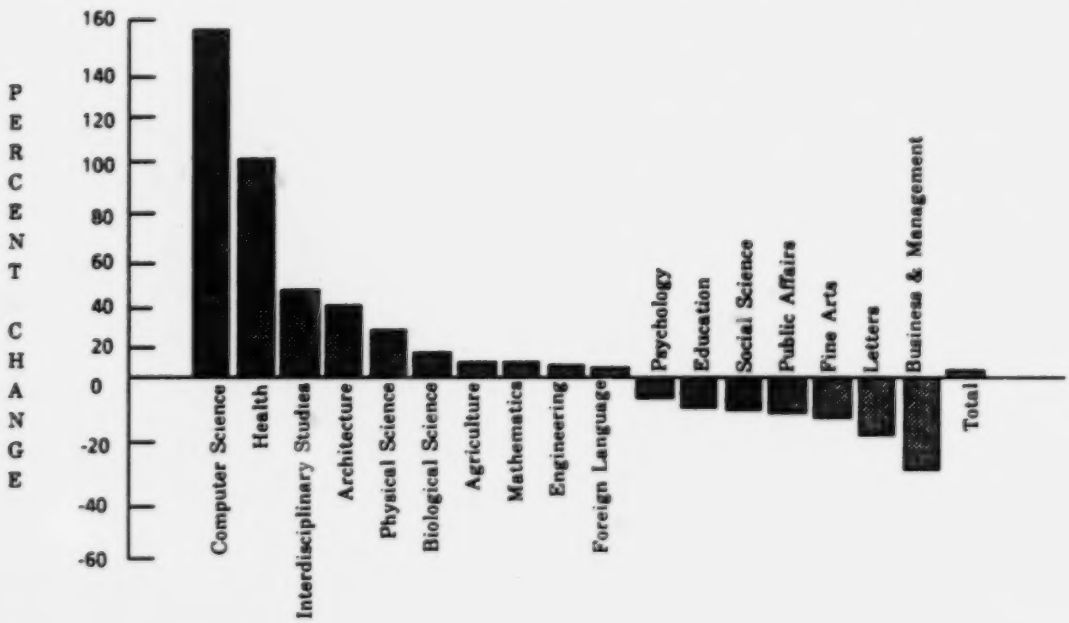
DISPLAY 5 *First Professional Degrees Awarded in Six Professions by the University of California to Men and Women, 1976-77 to 1985-86*

Field of Study	Sex	1976-77 Number	1976-77 Percent	1980-81 Number	1980-81 Percent	1981-82 Number	1981-82 Percent	1985-86 Number	1985-86 Percent
Dentistry	Men	131	77.1%	133	75.6%	178	79.8%	135	73.4%
	Women	39	22.9	43	24.4	45	20.2	49	26.6
	Total	170		176		223		184	
Law*	Men	827	66.5	782	61.7	774	61.4	677	58.5
	Women	416	33.5	486	38.3	486	38.6	480	41.5
	Total	1,243		1,268		1,260		1,157	
Medicine	Men	433	80.3	409	72.1	435	69.6	361	59.0
	Women	106	19.7	158	27.9	190	30.4	251	41.0
	Total	539		567		625		612	
Optometry	Men	38	66.7	48	81.4	53	76.8	41	64.1
	Women	19	33.3	11	18.6	16	23.2	23	35.9
	Total	57		59		69		64	
Pharmacy	Men	50	54.9	59	52.2	46	48.9	41	37.6
	Women	41	45.1	54	47.8	48	51.1	68	62.4
	Total	91		113		94		109	
Veterinary Medicine	Men	76	76.8	45	52.9	72	56.7	60	48.0
	Women	23	23.2	40	47.1	55	43.3	65	52.0
	Total	99		85		127		125	

* Include Hastings College of the Law.

Source: California Postsecondary Education Commission.

DISPLAY 6 *Percentage Change in the Number of Doctoral Degrees Awarded in 17 Subject Areas by the University of California and Jointly by the California State University, 1976-77 to 1985-86*



Source: California Postsecondary Education Commission.

DISPLAY 7 Number and Percent of Total Degrees Conferred in 21 Fields of Study by the University of California and the California State University, 1976-77 to 1985-86

Field and Level	1976-77 N	1976-77 %	1980-81 N	1980-81 %	1976-77 to 1980-81 % Point Change	1981-82 N	1981-82 %	1985-86 N	1985-86 %	1981-82 to 1985-86 % Point Change	Percentage Point Change, 1976-77 to 1985-86
Agriculture											
Bachelor's	1,896	3.0	2,028	3.3	+0.3	2,187	3.4	1,737	2.6	-0.8	-0.4
Master's	289	1.8	284	1.9	+0.1	334	2.1	246	1.7	-0.4	-0.1
Doctorates	38	1.9	44	2.1	+0.2	35	1.8	41	2.0	+0.2	+0.1
Architecture											
Bachelor's	719	1.1	664	1.1	0.0	682	1.1	573	0.9	-0.2	-0.2
Master's	293	1.8	362	2.4	+0.6	362	2.3	277	2.0	-0.3	+0.2
Doctorates	12	0.6	11	0.5	-0.1	21	1.1	16	0.8	-0.3	+0.2
Area Studies											
Bachelor's	253	0.4	179	0.3	-0.1	348	0.5	264	0.4	-0.1	0.0
Master's	59	0.4	62	0.4	0.0	82	0.5	84	0.6	+0.1	+0.2
Doctorates	3	0.2	8	0.4	+0.2	8	0.4	18	0.9	+0.5	+0.7
Biological Science											
Bachelor's	5,131	8.0	3,832	6.2	-1.8	3,748	5.9	3,954	6.0	-0.1	-2.0
Master's	559	3.5	503	3.3	-0.2	483	3.1	416	2.9	-0.2	-0.6
Doctorates	372	18.8	429	20.3	+1.5	404	20.4	416	20.1	-0.3	+1.3
Business and Management											
Bachelor's	8,301	12.9	10,823	17.5	+4.6	12,150	18.9	12,958	19.4	+0.5	+6.5
Master's	1,869	11.7	2,057	13.6	+1.9	2,254	14.3	2,160	15.2	+0.9	+3.5
Doctorates	47	2.4	31	1.5	-0.9	28	1.4	28	1.4	0.0	-1.0
Communications											
Bachelor's	1,569	2.4	2,097	3.4	+1.0	2,468	3.9	2,942	4.4	+0.5	+2.0
Master's	102	0.6	91	0.6	0.0	97	0.6	123	0.9	+0.3	+0.3
Doctorates	--	--	--	--	--	--	--	--	--	--	--
Computer Science											
Bachelor's	427	0.7	842	1.4	+0.7	1,139	1.8	2,339	3.5	+1.7	+2.8
Master's	143	0.9	261	1.7	+0.8	316	2.0	382	2.7	+0.7	+1.8
Doctorates	16	0.8	40	1.9	+1.1	28	1.4	41	2.0	+0.6	+1.2
Education											
Bachelor's	3,490	5.4	3,047	4.9	-0.5	2,382	3.7	1,902	2.6	-0.9	-2.8
Master's	4,038	25.4	3,470	23.0	-2.4	3,585	22.8	2,888	20.3	-2.5	-5.1
Doctorates	146	7.4	148	7.0	-0.4	148	7.5	127	6.1	-1.4	-1.3
Engineering											
Bachelor's	3,047	4.7	4,776	7.7	+3.0	5,698	8.9	6,498	9.8	+0.9	+5.1
Master's	1,324	8.3	1,284	8.5	+0.2	1,438	9.2	1,431	10.1	+0.9	+1.8
Doctorates	250	12.6	258	12.2	-0.4	246	12.4	265	12.8	+0.4	+0.2
Fine Arts											
Bachelor's	4,174	6.5	3,606	5.8	-0.7	3,506	5.5	3,004	4.5	-1.0	-2.0
Master's	855	5.4	804	5.3	-0.1	823	5.2	725	5.1	-0.1	-0.3
Doctorates	39	2.0	49	2.3	+0.3	35	1.8	32	1.5	-0.3	-0.5
Foreign Language											
Bachelor's	1,167	1.8	903	1.5	-0.3	872	1.4	798	1.2	-0.2	-0.6
Master's	244	1.5	200	1.3	-0.2	202	1.3	145	1.2	-0.1	-0.3
Doctorates	54	2.7	52	2.5	-0.2	42	2.1	57	2.8	+0.7	+0.1

(continued)

DISPLAY 7, continued

Field and Level	1976-77 N	1976-77 %	1980-81 N	1980-81 %	1976-77 to 1980-81 % Point Change	1981-82 N	1981-82 %	1985-86 N	1985-86 %	1981-82 to 1985-86 % Point Change	Percentage Point Change, 1976-77 to 1985-86
Health											
Bachelor's	2,651	4.1	3,006	4.9	+0.8	2,983	4.7	2,558	3.9	-0.8	-0.2
Master's	1,233	7.8	1,460	9.7	+1.9	1,323	8.4	1,380	9.7	+1.3	+1.9
Doctorates	43	2.2	55	2.6	+0.4	56	3.1	76	4.1	+1.0	+1.9
Home Economics											
Bachelor's	1,353	2.1	1,095	1.8	-0.3	1,128	1.8	1,134	1.6	-0.2	-0.5
Master's	122	0.8	153	1.0	+0.2	163	1.0	124	0.9	-0.1	+0.1
Doctorates	4	0.2	0	0.0	-0.2	0	0.0	0	0.0	0.0	-0.2
Letters											
Bachelor's	3,600	5.6	2,966	4.8	-0.8	2,987	4.7	3,083	5.0	+0.3	-0.6
Master's	780	4.9	639	4.2	-0.7	641	4.1	628	4.4	+0.3	-0.5
Doctorates	145	7.3	129	6.1	-1.2	104	4.3	108	4.2	-0.1	-3.1
Library Science											
Master's	450	2.8	188	1.2	-1.6	187	1.2	186	1.3	+0.1	-1.5
Doctorates	3	0.2	4	0.2	0.0	5	0.3	5	0.2	-0.1	0.0
Mathematics											
Bachelor's	911	1.4	766	1.2	-0.2	773	1.2	1491	2.3	+1.1	+0.9
Master's	250	1.6	150	1.0	-0.6	190	1.2	201	1.4	+0.2	-0.2
Doctorates	68	3.4	76	3.6	-0.2	66	3.3	73	3.5	+0.2	+0.1
Physical Science											
Bachelor's	1,401	2.2	1,409	2.3	+0.1	1,466	2.3	1,610	2.4	+0.1	+0.2
Master's	344	2.2	412	2.7	+0.5	450	2.9	391	2.8	-0.1	+0.6
Doctorates	291	14.7	311	14.7	0.0	336	17.0	353	17.0	0.0	+2.3
Psychology											
Bachelor's	4,478	7.0	3,846	6.2	-0.8	3,833	6.0	3,894	5.9	-0.1	-1.1
Master's	627	3.9	607	4.0	+0.1	588	3.7	518	3.7	0.0	-0.2
Doctorates	87	4.4	107	5.1	+0.7	87	4.4	719	3.8	-0.6	-0.6
Public Affairs											
Bachelor's	3,533	5.5	2,798	4.5	-1.0	2,536	4.0	1,922	3.0	-1.0	-2.5
Master's	1,004	6.3	1,070	7.1	+0.8	1,017	6.5	856	6.0	-0.5	-0.3
Doctorates	13	0.7	19	0.9	+0.2	18	0.9	11	0.5	-0.4	-0.2
Social Sciences											
Bachelor's	11,051	17.2	8,254	13.4	-3.8	8,237	12.9	8,597	13.0	+0.1	-4.2
Master's	1,092	6.9	844	5.6	-1.3	826	5.3	717	5.1	-0.2	-1.8
Doctorates	318	16.0	295	14.0	-2.0	253	12.8	272	13.1	+0.3	-2.9
Interdisciplinary Studies											
Bachelor's	5,017	7.8	4,752	7.7	-0.1	4,754	7.4	4,910	7.4	0.0	-0.4
Master's	192	1.2	190	1.3	+0.1	318	2.0	263	1.9	-0.1	+0.7
Doctorates	33	1.7	43	2.0	+0.3	50	2.5	46	2.2	-0.3	+0.5
Total											
Bachelor's	64,169	100.0	61,726	100.0	--	63,940	100.0	64,401	100.0	--	--
Master's	15,907	100.0	15,114	100.0	--	15,734	100.0	14,253	100.0	--	--
Doctorates	1,983	100.0	2,111	100.0	--	1,989	100.0	2,077	100.0	--	--

Source: California Postsecondary Education Commission.

overall loss of all. However, during the past five years, the number of bachelor's and doctorates in this area increased slightly.

Education experienced the greatest loss in total degrees awarded at the master's level of any single field, declining from 25.4 percent of total degrees awarded in 1976-77 to 20.3 percent in 1985-86, a 5.1 percentage point loss; and like the social sciences, it suffered losses in its share of degrees awarded at all three levels. Losses in fine arts, letters, and psychology were less severe but were also general across all levels.

On the positive side, business and management clearly established the best record for growth in total share of degrees awarded at the bachelor's and master's levels. Its percentage of all degrees jumped by 6.5 percentage points at the bachelor's and 3.5 points at the master's, but declined by 1.0 point at the doctoral level. Likewise, engineering, physical sciences, and computer science recorded substantial percentage increases in the number of degrees at all levels, but unlike business and management and engineering, the fields of computer science and the physical sciences still represent a relatively small share of all degrees conferred, although the number of total degrees conferred in computer science has increased markedly.

Finally, some disciplines -- among them, communications, health, and mathematics -- increased their percentage at one degree level while declining at others.

2 *Trends in Specific Majors*

TO indicate the general direction of student program choices, the description of broad disciplinary categories contained in Chapter One is sufficient. Within some of these categories, however, the extent of shifts in student choices becomes fully apparent only when the specific degree programs of individual academic departments or disciplines are compared. This chapter examines those disciplines at California's two public universities that gained or lost the most graduates between 1976-77 and 1985-86.

Engineering specialties

The number of bachelor's degrees in all fields of engineering increased markedly between 1976-77 and 1985-86, almost quadrupling in electrical/electronic engineering and nearly doubling or tripling in all other fields except civil engineering, where the number of bachelor's degrees conferred remained unchanged (Display 8, pages 16-17).

At the same time, the number of graduate degrees in most engineering specialties grew little if at all. The total number of master's degrees increased slightly, primarily because of an increasing number of degrees awarded to women; but the number of doctoral degrees remained virtually unchanged and became a matter of some concern, since it could affect the future supply of faculty and the vitality of research in engineering.

A number of engineering programs at both the University and the State University have been declared "impacted," meaning that enrollments are near capacity and that students must meet special conditions before they can be admitted. Such impaction creates a number of complications for curricular planning. Not only is it necessary, as in any field, to predict the extent and duration of student and societal demand for each of the specialized areas of study, but the limited availability of faculty and the need for state-of-the-art equipment make engineering a difficult field to plan for at the present time. There are growing indications of interest on the part of industrial management in involving itself more directly in the process of engineering education. Such involvement, properly regulated, may ease some of the pressures many campuses are currently experiencing in their efforts to determine and serve the public interest in this curricular area.

Letters

The category of letters includes several traditional mainstays of the humanities curriculum, and Display 9 on pages 18-19 depicts trends in four of them -- classics, comparative literature, English, and philosophy. Comparative literature suffered one of the largest losses among all letters disciplines at the bachelor's level -- 73.1 percent in bachelor's degrees over the past ten years.

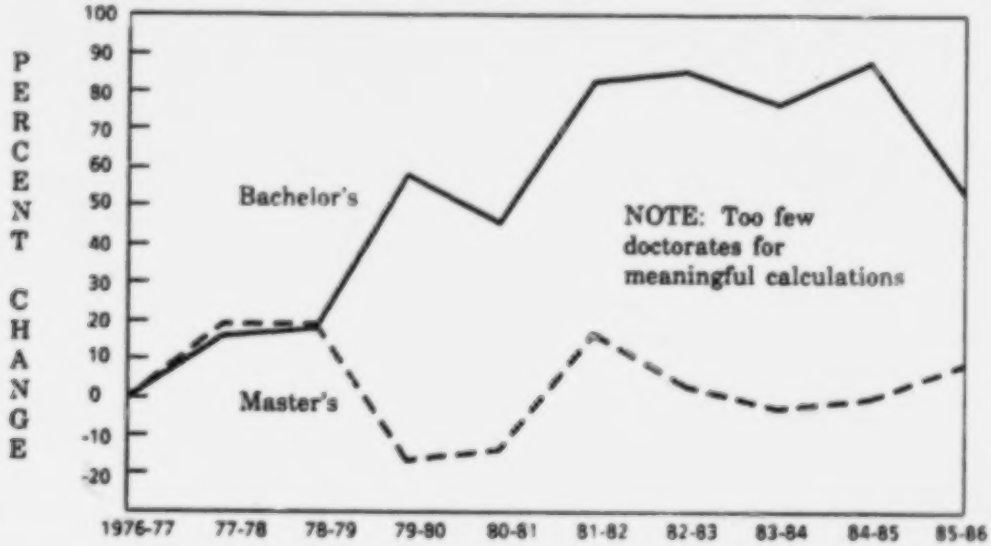
Classics has the distinction of being the discipline most often cited as an example of a field of study that must be maintained to preserve the wholeness of the curriculum, no matter what the enrollment. Certainly, if student demand at all three degree levels were the only criterion, one campus would be more than able to accommodate all classics majors in the State, since only 16 baccalaureates were awarded in this major in 1985-86.

For decades, the most popular major among all letters subjects was English -- the undergraduate program on most campuses consisting of a combination of courses in English and American language and literature. The English major was never a direct route to employment, except perhaps for students interested in teaching in secondary schools, but served instead to provide a liberal education for those preparing for careers in law, advertising, journalism, public relations, and a range of other occupations.

The 1,989 bachelor's degrees in English awarded in 1985-86 by the University and the State University might still be impressive were it not for the 7.2 percent decrease over ten years that Display 9 indicates. That the number of graduate degrees in English is also declining is not surprising in view of the publicity given to the oversupply of Ph.D.s in the field. In the past three years, however, public inter-

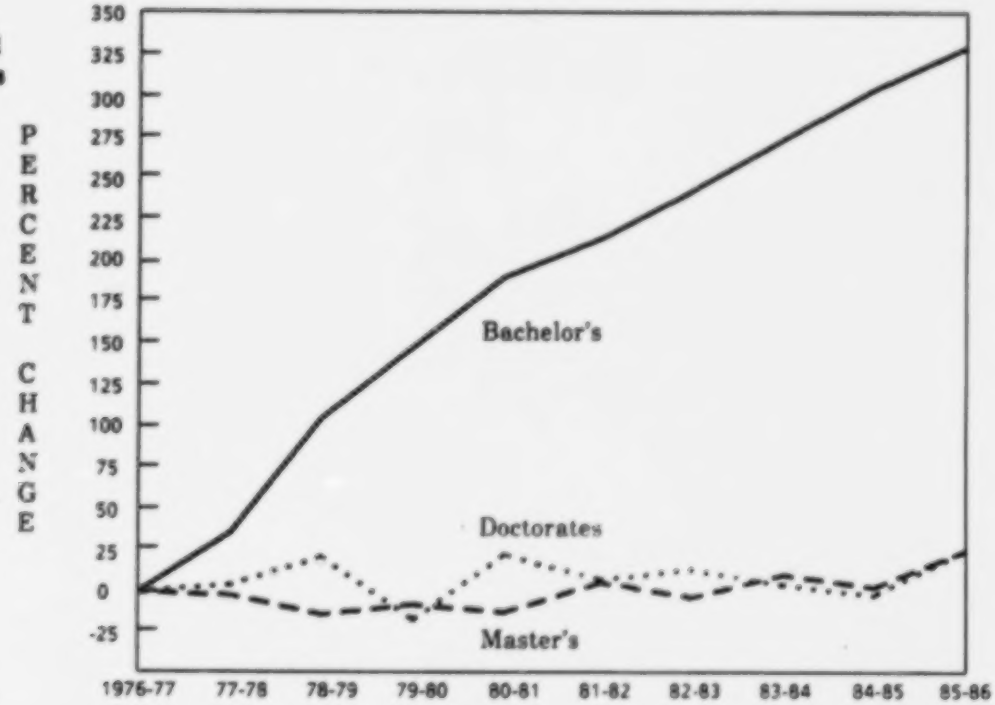
DISPLAY 8 *Percent Change in the Number of Degrees Conferred in Selected Engineering Majors by the*

Chemical Engineering



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	193	223	228	305	281	352	357	342	363	296
Master's	36	43	43	30	31	42	37	35	36	39
Doctorates	13	10	12	12	15	15	20	28	22	16

Electrical, Electronics, and Communications Engineering

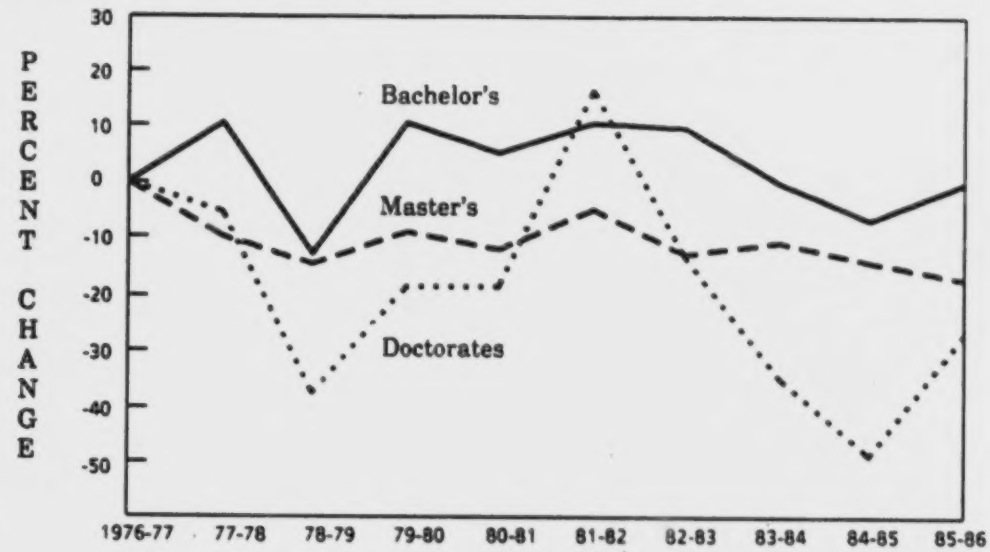


Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	406	540	819	1004	1176	1268	1385	1517	1633	1749
Master's	266	261	226	242	231	279	253	289	267	330
Doctorates	38	39	45	31	46	40	42	39	37	47

Source: California Postsecondary Education Commission.

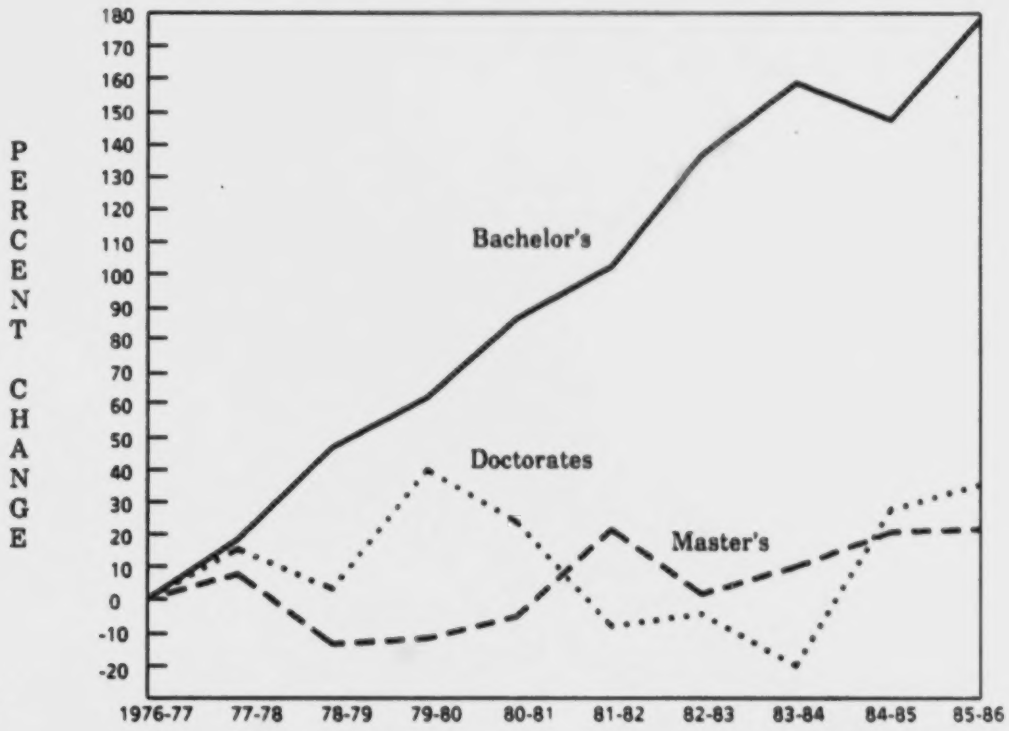
University of California and the California State University, 1976-77 to 1985-86

Civil, Construction, and Transportation Engineering



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	618	684	539	685	652	685	677	620	575	619
Master's	311	281	265	252	274	299	271	277	267	257
Doctorates	37	35	23	30	30	43	32	24	19	27

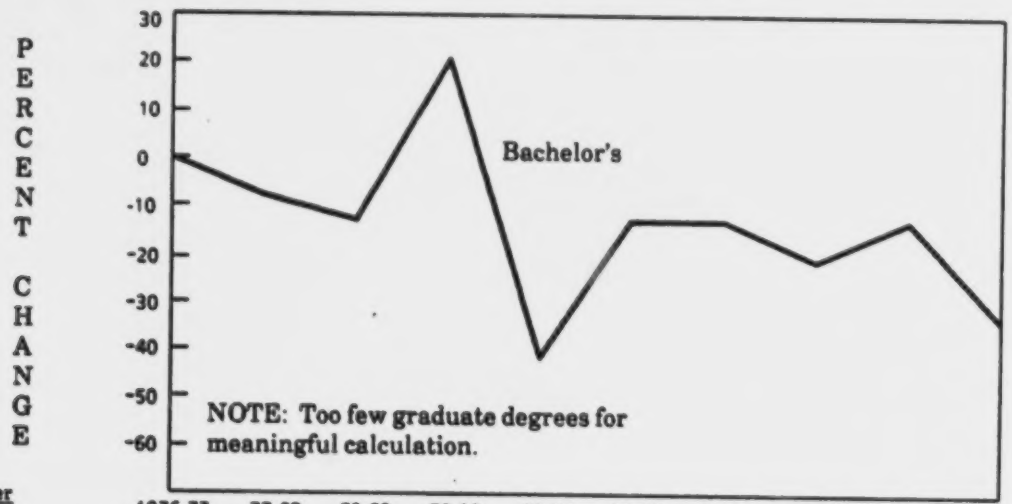
Mechanical Engineering



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	379	449	558	613	707	767	898	981	936	1055
Master's	151	163	131	133	144	184	154	167	182	184
Doctorates	25	29	26	35	31	23	24	20	32	34

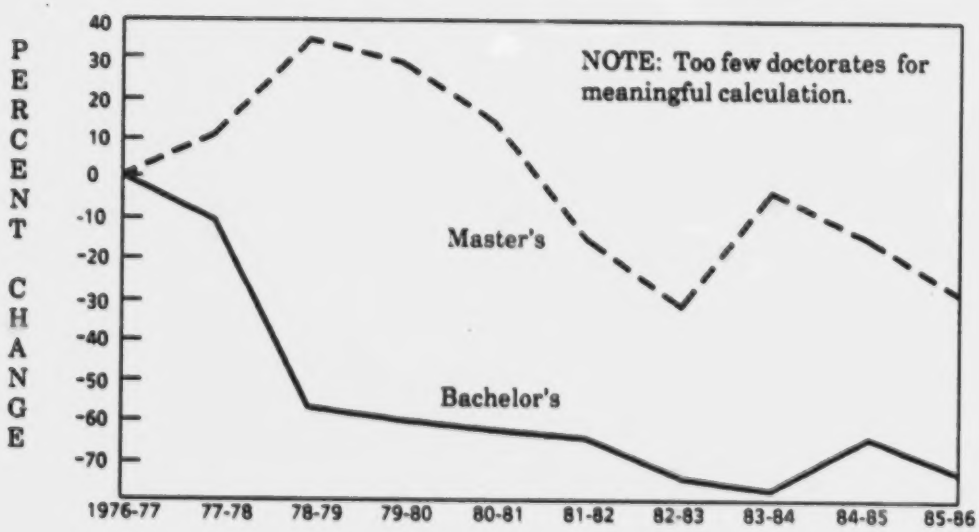
DISPLAY 9 *Percent Change in the Number of Degrees Conferred in Selected Letters Majors by the*

Classics



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	24	22	21	29	14	21	21	19	21	16
Master's	8	11	5	4	4	14	7	7	3	8
Doctorates	2	2	3	0	3	2	2	4	1	1

Comparative Literature

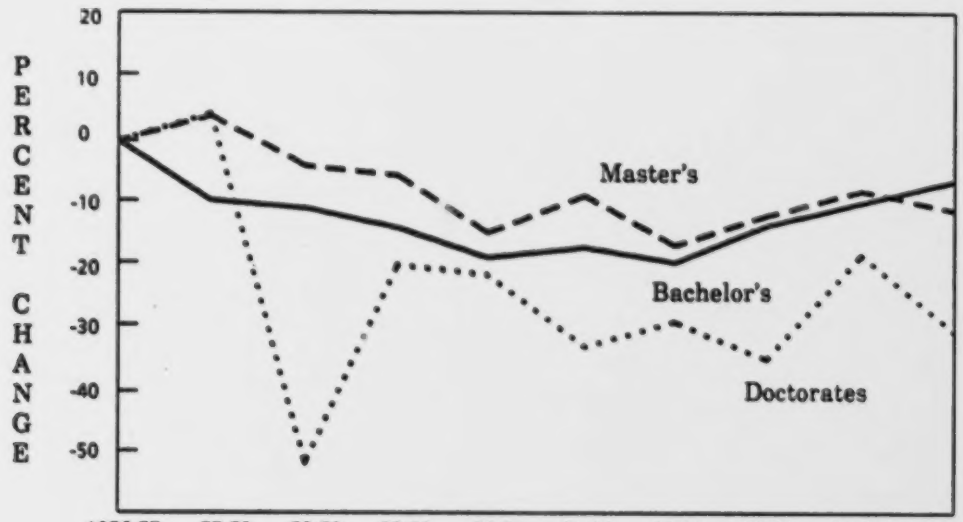


Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	186	166	81	75	69	66	49	42	66	50
Master's	35	39	47	45	40	30	24	34	30	25
Doctorates	27	14	14	14	27	15	18	23	20	18

Source: California Postsecondary Education Commission.

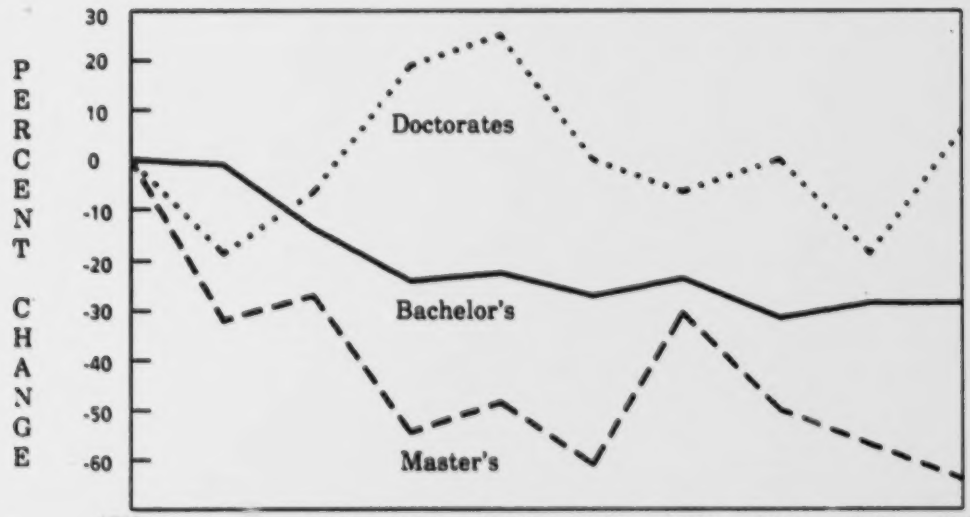
University of California and the California State University, 1976-77 to 1985-86

English



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	2143	1934	1906	1823	1732	1773	1717	1840	1918	1989
Master's	426	441	406	399	360	387	354	373	391	377
Doctorates	54	56	26	43	42	36	38	35	44	37

Philosophy



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	351	347	303	265	271	256	267	240	249	249
Master's	62	42	45	28	32	24	43	31	27	22
Doctorates	16	13	15	19	20	16	15	16	13	17

est in improving writing skills may have contributed to an increase in the number of degrees conferred in English. During this time, bachelor's degrees in English have increased from 1,717 in 1982-83 to 1,989 in 1985-86 – a 15.8 percent increase.

Philosophy served a dwindling number of undergraduate majors during the ten years, experiencing a 29.1 percent decline in baccalaureates. While the relatively small number of doctorates in philosophy has increased slightly, the number of master's degrees declined by 64.5 percent the last ten years. With few opportunities for teaching philosophy in the secondary schools, the occupational utility of the master's degree in philosophy is perhaps even more limited than master's degrees in other humanities disciplines.

Social science disciplines

During the last ten years, several social science disciplines suffered large losses in the number of baccalaureate degrees awarded. Display 10 on pages 21-26 shows changes in 12 area studies and social science specialties. As can be seen, between 1976-77 and 1985-86, bachelor's degrees in Afro-American studies declined by 67.9 percent, in anthropology by 60.6 percent; in history, by 36.2 percent; and in sociology, by 51.0 percent. In recent years, however, most of these declines appear to have bottomed out, and in some instances the number of bachelor's degrees conferred in these majors has increased slightly. Moreover, the number of master's degrees recently conferred in selected social sciences also suggest that the movement of students out of the social sciences may be abating. In the past two years, several campuses have experienced slight increases in the number of students enrolling in what have been low-demand disciplines.

As can be seen from Display 10, the two social science disciplines that have enjoyed overall increases over the past decade are economics and international relations. Bachelor's degrees in international relations increased from 73 in 1976-77 to 211 in 1985-86, or 189 percent, while those in economics rose from 1,513 to 1,949, or nearly 29 percent. Baccalaureates in economics awarded by the University increased slightly during the ten-year period, while those at the State University dropped in the first five years and then increased during the second five.

In general, the percentage drop in baccalaureates among all social science disciplines has been more severe in the State University than in the University. The pattern is much the same at the graduate level, where the decline in social science master's degrees at the State University is particularly striking. There, only criminology and sociology showed modest increases over the past ten years, while general social science, political science, and history posted declines. Even in economics -- a field in which the number of master's degrees awarded by the University of California increased -- the number of master's degrees awarded by the State University declined.

Other disciplines undergoing major changes

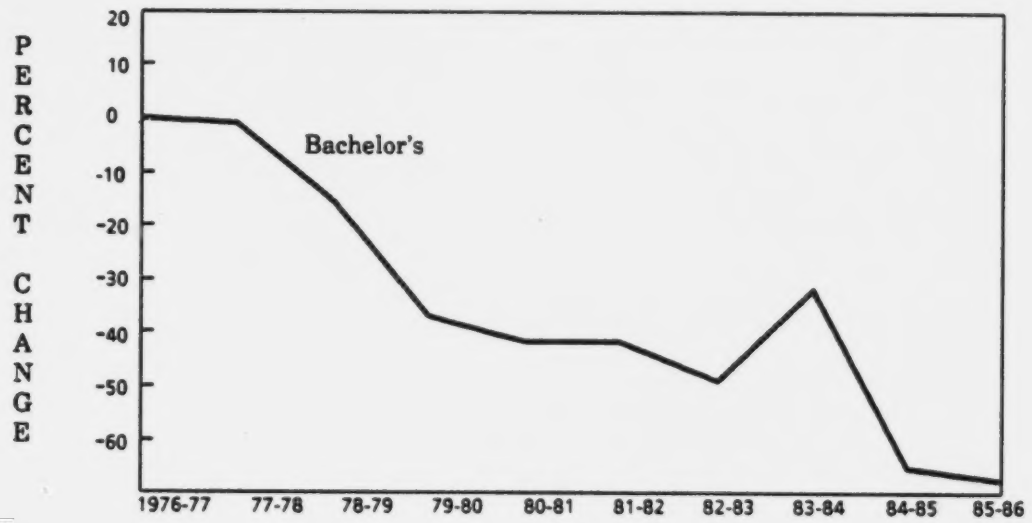
In addition to the specific programs discussed in the preceding pages, other disciplines have also experienced major changes in the numbers of degrees awarded during the last ten years. For example, in the past five years alone, baccalaureates in computer science have increased by 105.3 percent, while master's and doctorates have increased by 22.2 percent and 57.7 percent, respectively. This high-demand major, however, may soon experience a topping-out as current market conditions suggest a consolidation of computer firms and a reduced demand for management information systems personnel.

Every field of study will show some fluctuation in the number of students earning degrees, but the magnitude of the changes in the individual degree programs listed in Displays 11 and 12 on pages 27-29 suggest an unusual volatility and further demonstrate the difficulties of curriculum management. These two displays show those fields with increases or decreases of at least 20 percent in the number of degrees awarded during the years 1976-77 to 1980-81 and between 1981-82 and 1985-86. (As the displays note, they include only those programs that awarded at least 100 degrees at the bachelor's level, 50 at the master's level, or 25 at the doctoral level in either 1976-77, 1980-81, 1981-82, or 1985-86.)

At the baccalaureate level, between 1976-77 and 1980-81 agricultural business, landscape architecture, and general architecture experienced the greatest increases, while bacteriology, cinematography, and city planning noted the greatest declines. In contrast, during the five years between 1981-82 and 1985-86, applied mathematics, human and animal genetics, and general mathematics ex-

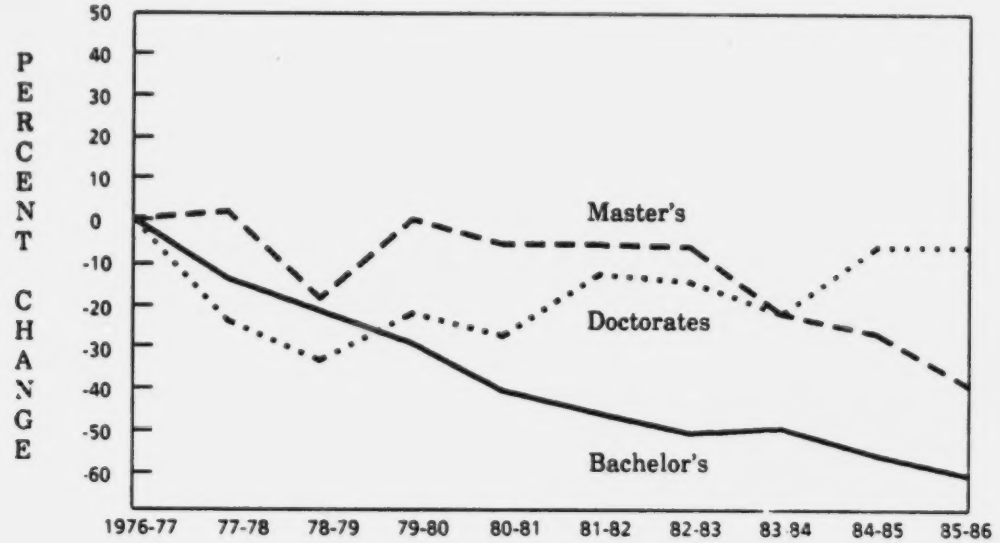
DISPLAY 10 *Percent Change in the Number of Degrees Conferred in Selected Area Studies and Social Science Majors in the University of California and the California State University, 1976-77 to 1985-86*

Afro-American (Black Culture) Studies



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	84	83	71	53	50	49	43	57	29	27
Master's	--	--	--	--	--	--	--	--	1	3
Doctorates	--	--	--	--	--	--	--	--	--	--

Anthropology

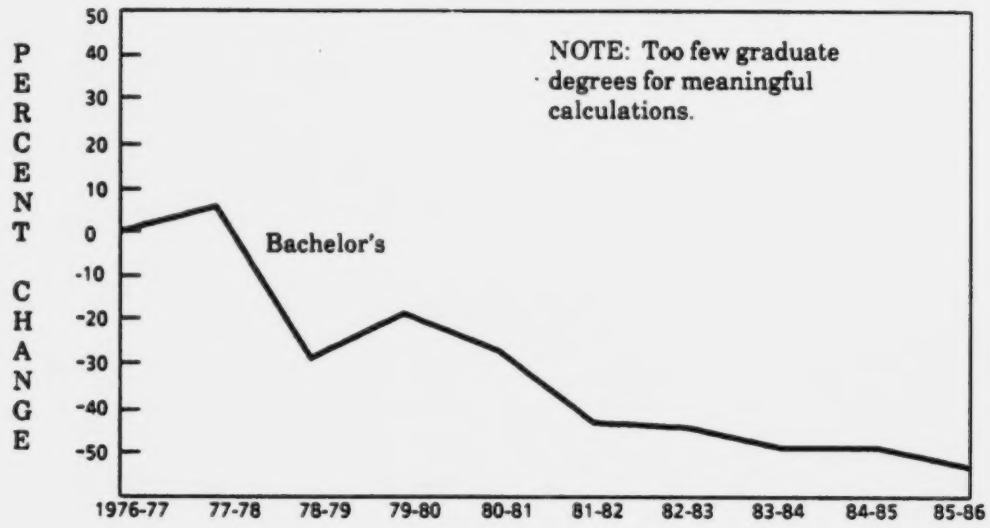


Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	903	775	710	635	534	486	444	454	389	356
Master's	125	128	102	126	119	119	118	97	91	76
Doctorates	54	41	36	42	39	47	46	42	51	48

Source: California Postsecondary Education Commission.

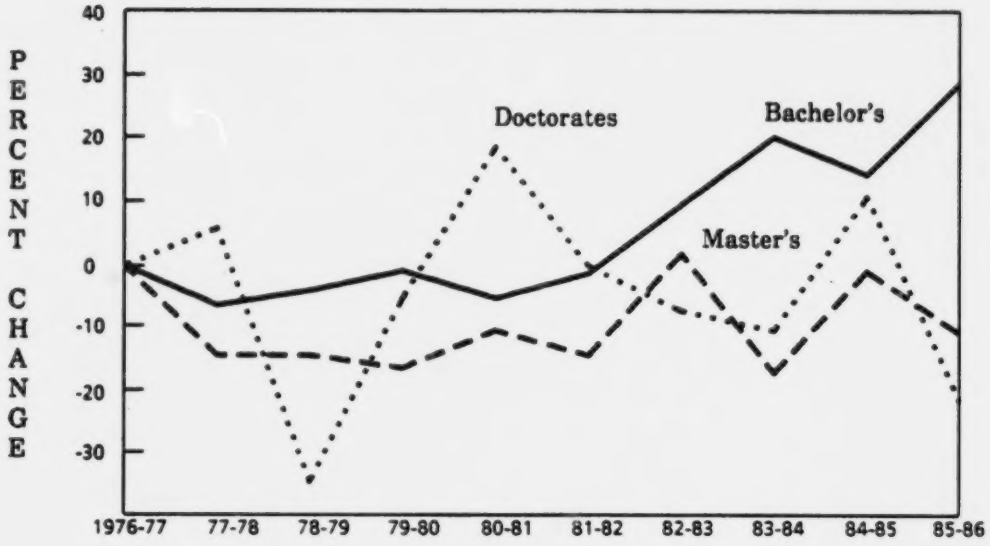
DISPLAY 10, continued

Criminology



Type and Number									
Bachelor's	170	179	121	139	125	98	94	88	87	79
Master's	12	11	7	17	17	5	14	12	10	13
Doctorates	6	8	0	0	0	0	0	0	0	0

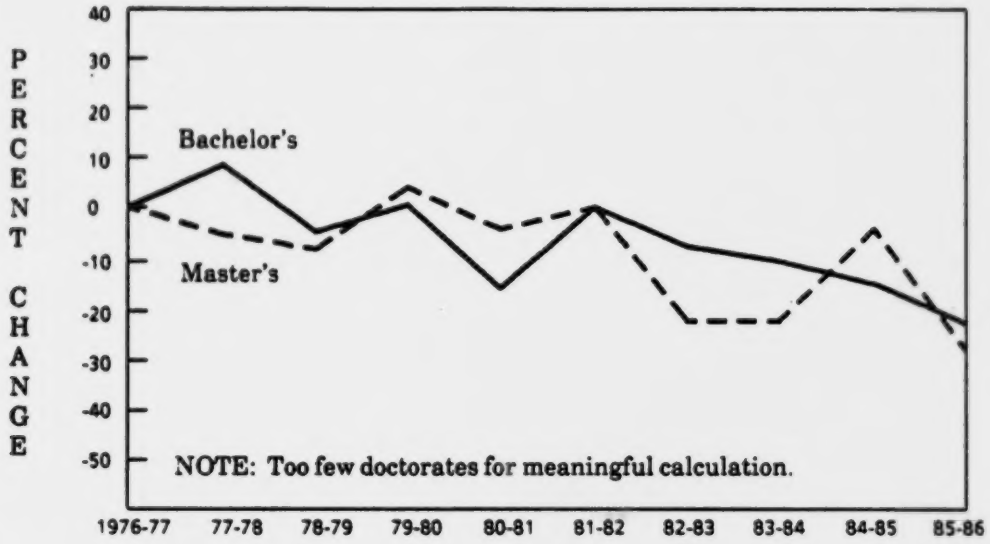
Economics



Type and Number									
Bachelor's	1513	1413	1440	1498	1431	1489	1660	1814	1727	1949
Master's	176	151	151	147	157	151	179	145	174	156
Doctorates	55	58	36	52	65	55	51	49	61	43

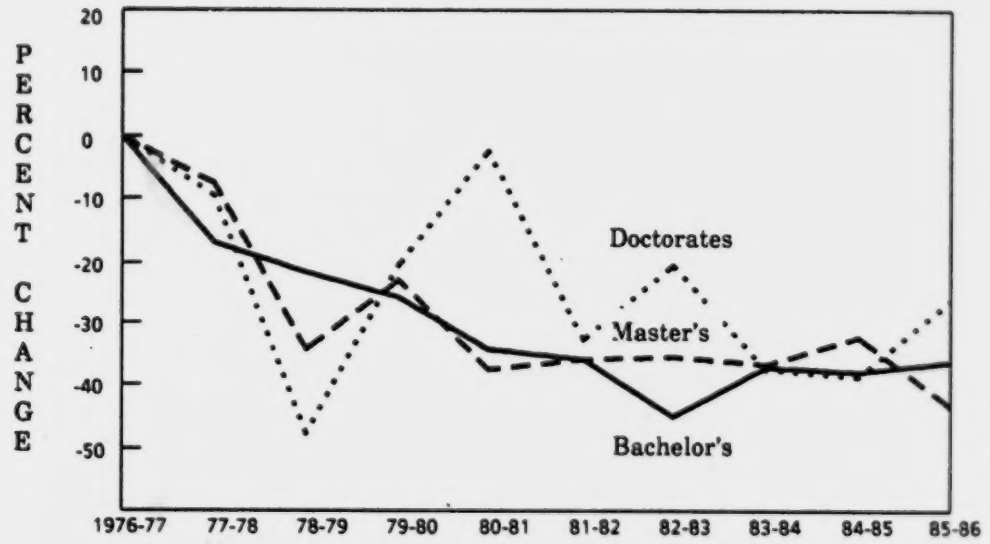
DISPLAY 10, continued

Geography



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	591	642	562	596	499	593	548	532	505	454
Master's	75	71	69	78	72	75	58	58	72	54
Doctorates	18	13	10	11	8	14	14	19	14	19

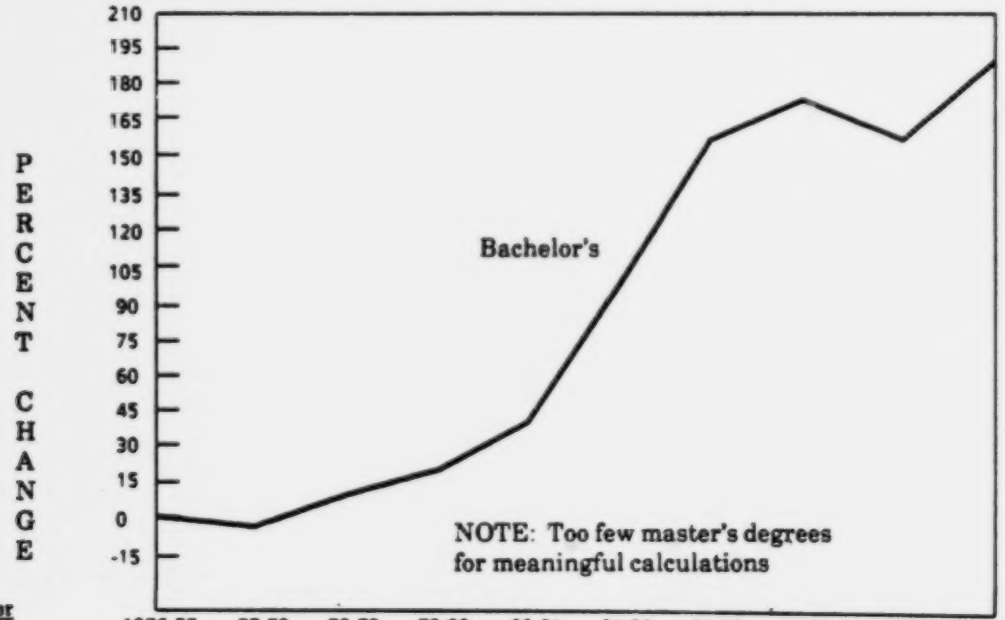
History



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	2035	1682	1589	1504	1339	1309	1121	1285	1261	1298
Master's	274	252	180	210	171	176	177	174	186	155
Doctorates	83	75	43	66	81	56	66	52	51	61

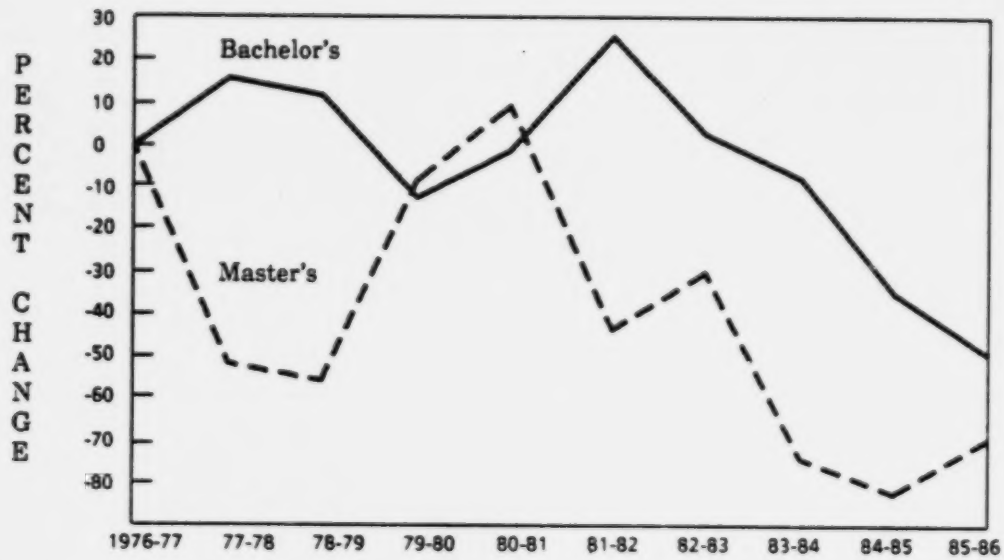
DISPLAY 10, continued

International Relations



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	73	70	81	88	102	146	186	198	185	211
Master's	18	20	11	10	12	18	31	15	23	15
Doctorates	--	--	--	--	--	--	--	--	--	--

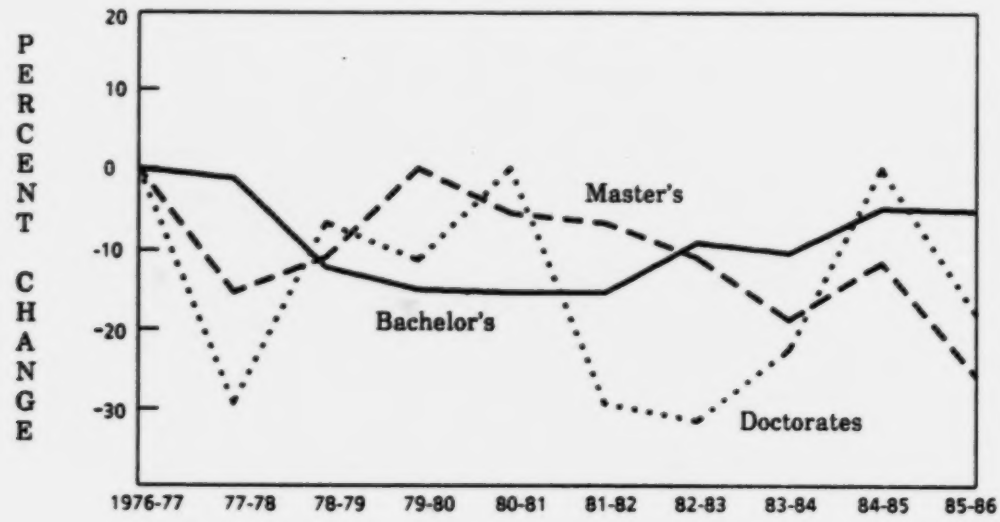
Mexican-American Cultural Studies



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	75	86	83	65	74	94	77	69	49	38
Master's	23	11	10	21	25	13	16	6	4	7
Doctorates	--	--	--	--	--	--	--	--	--	--

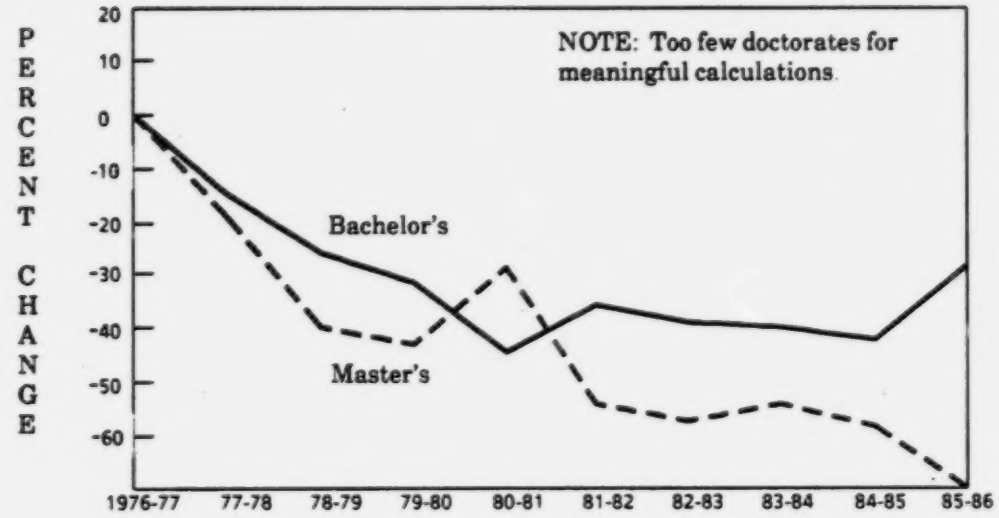
DISPLAY 10, continued

Political Science



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	2268	2236	1990	1920	1915	1917	2055	2035	2157	2155
Master's	160	135	142	160	151	149	142	130	141	118
Doctorates	44	31	41	39	44	31	30	34	44	36

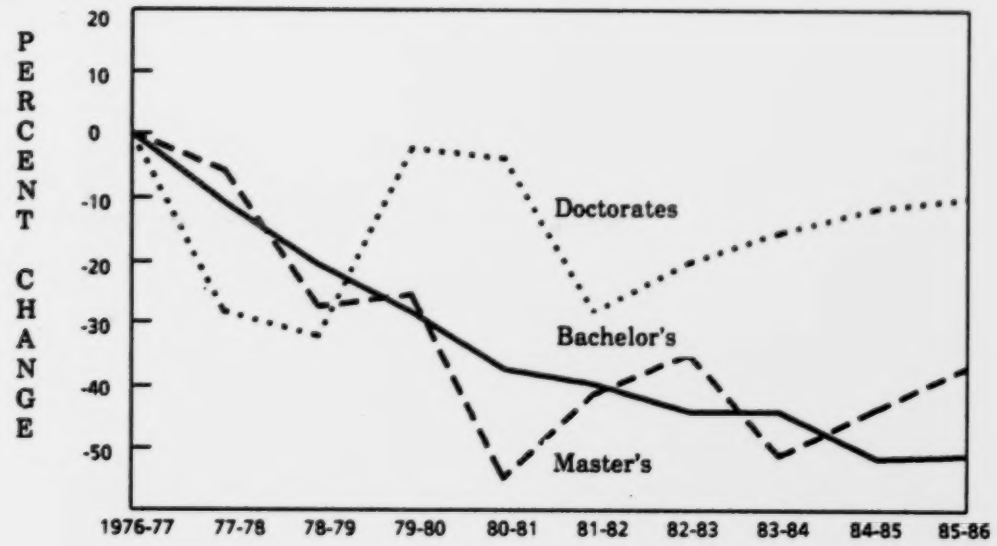
Social Sciences, General



Type and Number	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Bachelor's	941	799	702	643	519	605	576	566	548	676
Master's	70	57	42	40	50	32	30	32	29	21
Doctorates	6	9	8	9	7	11	4	6	3	11

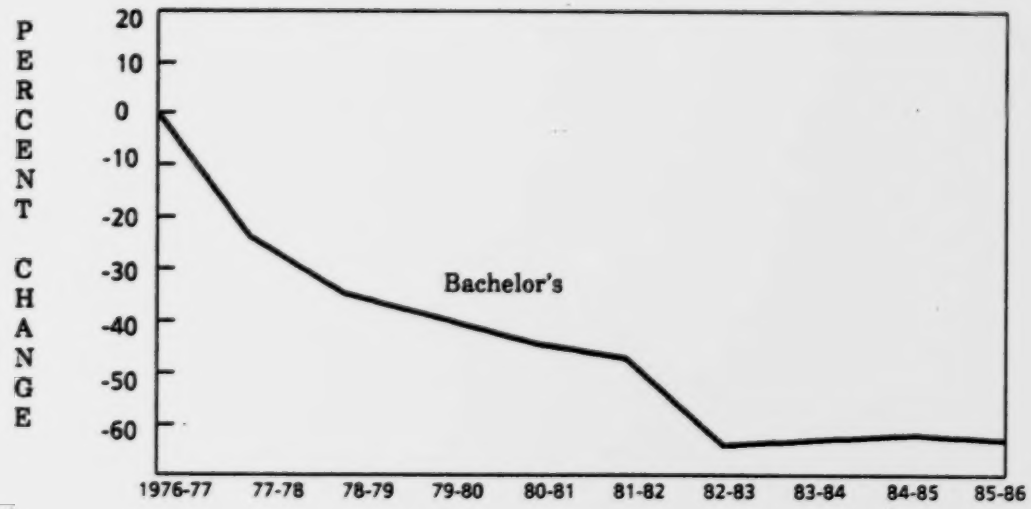
DISPLAY 10, concluded

Sociology



Type and Number									
Bachelor's	2148	1916	1701	1545	1343	1309	1200	1206	1036	1053
Master's	149	140	108	111	68	88	97	73	84	94
Doctorates	50	36	34	49	48	36	40	42	44	45

Urban Studies



Type and Number									
Bachelor's	106	81	69	64	60	56	38	39	40	39
Master's	--	--	--	--	--	--	--	--	--	--
Doctorates	--	--	--	--	--	--	--	--	--	--

DISPLAY 11 Additional Fields in Which the Number of Degrees Increased or Decreased by 20 Percent or More Between 1976-77 and 1980-81

Level and Discipline	1976-77	1980-81	Percent Change
Bachelor's Degrees			
Agricultural Business	148	255	+72.3
Landscape Architecture	75	129	+72.0
Architecture	253	399	+57.7
Geology	276	363	+31.5
Applied Design	175	229	+30.8
Food Science and Technology	85	107	+25.8
Speech Pathology	407	496	+21.8
Spanish	569	431	-24.2
Law Enforcement and Corrections	1,266	918	-27.4
Parks and Recreation Management	948	670	-29.3
German	138	94	-31.8
American Studies	116	78	-33.6
General Biology	3,003	1,986	-33.8
Botany	121	77	-36.8
Zoology	437	262	-40.0
City Planning	135	49	-63.7
Cinematography	127	31	-75.5
Bacteriology	160	19	-88.1
Master's Degrees			
Speech Pathology and Audiology	177	294	+66.1
Physics	93	140	+50.5
Geology	48	64	+33.3
Architecture	129	166	+28.6
Social Work and Helping Services	502	613	+22.1
Public Health	369	448	+21.4
Parks and Recreation Management	71	54	-23.9
French	66	47	-28.7
Medical Laboratory Technology	110	87	-28.9
Doctoral Degrees			
Microbiology	17	29	+52.9
Physics	56	76	+35.7
Entomology	21	28	+33.3
Chemistry	119	151	+26.8
Physiology	28	17	-39.2
Oceanography	25	15	-40.0

* Includes only those programs awarding at least the following number of degrees in either year: bachelor's, 100; master's, 50; doctoral, 25.

Source: California Postsecondary Education Commission.

DISPLAY 12 Additional Disciplines in Which the Number of Degrees Increased or Decreased by 20 Percent or More Between 1981-82 and 1985-86

Level and Discipline	1981-82	1985-86	Percent Change
Bachelor's Degrees			
Applied Mathematics	54	246	+355.6
Genetics, Human and Animal	50	132	+164.0
Mathematics, General	672	1,066	+58.6
Physiology, Human and Animal	161	242	+50.3
International Relations	146	211	+44.5
Industrial Technology	396	556	+40.4
Communications, General	1,062	1,475	+38.9
Liberal/General Studies	345	471	+36.5
Physics, General	325	434	+33.5
Speech, Debate, and Forensics	441	575	+30.4
Industrial Engineering	114	143	+25.4
Radio/Television, General	478	597	+24.9
Art History and Appreciation	128	102	-20.3
Physical Education	1,176	933	-20.7
Music, General	539	425	-21.2
Zoology, General	235	185	-21.3
Pre-Elementary Education	764	585	-23.4
Microbiology	349	260	-25.5
Physical Therapy	161	118	-26.7
Social Work, General	756	473	-37.4
Parks and Recreation, General	644	401	-37.7
Forestry and Related Sciences, General	123	76	-38.2
Ornamental Horticulture	168	101	-39.9
Renewable Natural Resources, General	229	136	-40.6
Music Performance	111	65	-41.4
Speech Pathology/Audiology	448	256	-42.9
Master's Degrees			
Special Education, General	61	98	+60.7
Geology	69	97	+40.6
Linguistics	72	97	+34.7
Nursing, General	323	423	+31.0
City, Community, and Regional Planning	92	70	-23.9
Architecture	164	120	-26.8
Library and Archival Sciences, General	76	55	-27.6
French	58	41	-29.3
Physics, General	144	100	-30.6
Education, General	2,741	1,838	-32.9
Anthropology	119	76	-36.1
Home Economics, General	94	59	-37.2
Agricultural Sciences, General	109	61	-44.0

(continued)

DISPLAY 12, continued

Level and Discipline	1981-82	1985-86	Percent Change
Doctoral Degrees			
Entomology	28	36	+28.6
Physics, General	77	99	+28.6
Multi/Interdisciplinary Studies, Other	47	34	-27.7

* Includes only those programs awarding at least the following number of degrees in either year: bachelor's, 100; master's, 50; doctorates, 25.

Source: California Postsecondary Education Commission.

perienced the greatest gains, while speech pathology/audiology, music performance, and general renewable natural resources had the greatest losses.

Similar shifts occurred at the master's level. During the first five years of the decade, speech pathology-audiology, physics, and geology were the three majors with the largest percentage gains, while medical laboratory technology, French, and parks and recreation management were the three with the greatest declines. By the second half of the decade, however, the three majors noting the greatest increases had shifted to special education, geology, and linguistics, while those with the largest declines were general agricultural sciences, home economics, and anthropology.

At the doctoral level, from 1976-77 to 1980-81 microbiology experienced the greatest percentage increase, while oceanography noted the greatest decrease. In comparison, from 1981-82 to 1985-86 entomology had the largest gain, while other multidisciplinary or interdisciplinary studies had the largest decline.

3 *Degree Choices of Men and Women*

THE total number of bachelor's and master's degrees awarded by California's two public universities remained virtually constant over the 1976-77 to 1985-86 period, but substantial changes took place in the number of men and women receiving degrees and, in some instances, the disciplines in which they were obtained.

(In reviewing these changes, the reader should be aware that the University of California did not report the sex of approximately 8 percent of its degree recipients in 1980-81 and of smaller percentages in subsequent years. As a result, Commission staff developed the trend analyses in this chapter using only those degree recipients whose sex was known.)

Bachelor's degrees

At the baccalaureate level, the number of degrees awarded to women by the University of California and the California State University over the past decade increased by 18.3 percent, while the number awarded to men declined by 8.9 percent (Display 13, page 32). The ratio of bachelor's degrees awarded to men and women was 54:46 in 1976-77, but by 1985-86 this ratio had become 48:52 (Display 14, page 33).

In 1976-77, the four most popular fields for men, in order of their popularity, were the social sciences, business and management, the biological/life sciences, and engineering. In 1985-86, these same four fields retained their top positions for men, but their order of preference changed to business and management, engineering, the social sciences, and the biological/life sciences. Whereas these four fields accounted for 53.4 percent of the bachelor's degrees awarded to men in 1976-77, they represented 58.1 of men's degrees in 1985-86.

In 1976-77, women at the University and State University selected the social sciences, interdisciplinary studies, psychology, and fine arts as their four most preferred fields of study. These four fields accounted for 45.2 percent of the total number of bachelor's degrees awarded to women in that year. By 1985-86, the top four fields had shifted to business and management, the social sciences, interdisciplinary studies, and psychology.

In 1985-86, these four disciplines accounted for 48.6 percent of the total number of bachelor's degrees awarded -- a 3.4 percentage-point increase over the 45.2 percent ten years earlier.

The movement of women into business and management programs has been dramatic during the past ten years, with bachelor's degrees awarded to women in that field increasing by 56.0 percent. Display 14 on page 33 depicts graphically the percentage change in bachelor's degrees awarded to men, women, and all students of California's two public universities in 20 general fields of study between 1976-77 and 1985-86. (The displays in Appendix C show these changes for the two half-decades of 1976-77 to 1980-81 and 1981-82 to 1985-86.) As Display 15 illustrates, women generally recorded greater percentage increases than men in the "growth" fields and, conversely, lesser decreases in those fields experiencing losses over the ten years. In some measure, these changes are due to the increase in the total number of bachelor's degrees awarded to women; however, the overriding trend that emerges from these data is that women are moving into the high-demand disciplines more rapidly (on a percentage basis) than men and are leaving the low-demand fields such as social sciences and public affairs more slowly than their male counterparts.

The two disciplines experiencing the most rapid expansion for men, as measured by the percentage increase in degrees awarded, were computer science and engineering. For women, disciplines more than doubling their degree productivity between 1976-77 and 1985-86 included computer science, engineering, business and management, and communications. A fourth discipline, mathematics, nearly doubled as well. These percentage gains are impressive for women receiving their degree in business and management and communications. However, Display 14 on page 33 shows that the ratio of degrees awarded to women versus men in engineering and computer science increased only modestly between 1976-77 and 1985-86. The field with the lowest

DISPLAY 13 *Percentage Change in the Number of Bachelor's Degrees Awarded to Men and Women by the University of California and the California State University, 1976-77 to 1980-81, 1981-82 to 1985-86, and 1976-77 to 1985-86*

Field of Study	1976-77 to 1980-81			1981-82 to 1985-86			1976-77 to 1985-86		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agriculture	-11.9	+42.5	+7.0	-23.7	-15.5	-20.6	-25.9	+39.6	-8.3
Architecture	-25.8	+36.1	-7.6	-16.3	-15.4	-16.0	-28.7	+10.3	-20.3
Area Studies	-30.4	-43.5	-29.2	-30.0	-21.3	-24.1	-9.8	+12.4	+4.3
Biological Science	-39.9	-9.6	-25.3	-0.5	+11.9	+5.5	-41.5	+10.1	-22.9
Business and Management	+6.4	+99.3	+30.4	-7.4	+26.7	+6.7	+7.0	+197.7	+56.0
Communications	+2.1	+79.1	+33.7	+10.6	+26.0	+19.2	+26.4	+181.7	+87.5
Computer Science	+81.0	+133.7	+97.2	+101.0	+115.5	+105.4	+365.7	+1729.5	+447.8
Education	-24.5	+0.7	-12.7	-23.1	-18.4	-20.2	-63.3	-24.6	-45.5
Engineering	+47.5	+187.0	+56.7	+10.5	+42.2	+14.0	+91.1	+494.8	+113.3
Fine Arts	-24.9	-10.5	-13.6	-14.6	-14.2	-14.3	-33.5	-24.4	-28.0
Foreign Languages	-30.8	-22.5	-22.6	+2.4	-11.9	-8.5	-29.5	-32.3	-31.6
Health	-1.0	+16.7	+13.4	-17.3	-13.7	-14.3	-19.8	+0.5	-3.2
Home Economics	-44.7	-19.8	-19.1	+3.6	-8.6	-8.3	-23.7	-23.6	-23.6
Letters	-25.2	-17.6	-17.6	+4.7	+13.3	+10.0	-15.5	-4.3	-8.8
Mathematics	-21.5	-10.2	-15.9	+79.0	+115.1	+92.9	+44.8	+97.8	+63.7
Physical Science	-8.5	+25.3	+0.6	+9.1	+12.0	+9.8	+3.9	+62.2	+14.9
Psychology	-33.3	-4.8	-14.1	-7.9	+6.1	+1.6	-39.9	+6.3	-13.0
Public Affairs	-39.7	0.0	-20.8	-22.8	-25.2	-24.2	-57.7	-31.7	-45.6
Social Science	-34.3	-1.9	-25.3	+3.1	+5.8	+4.4	-29.8	-11.7	-22.2
Interdisciplinary Studies	-20.1	-1.9	-5.3	-2.8	+3.5	+3.3	-15.1	+4.3	-2.1
Total	-14.5	+4.3	-3.8	+1.1	+6.4	+3.9	-8.9	+18.3	+3.5

Source: California Postsecondary Education Commission.

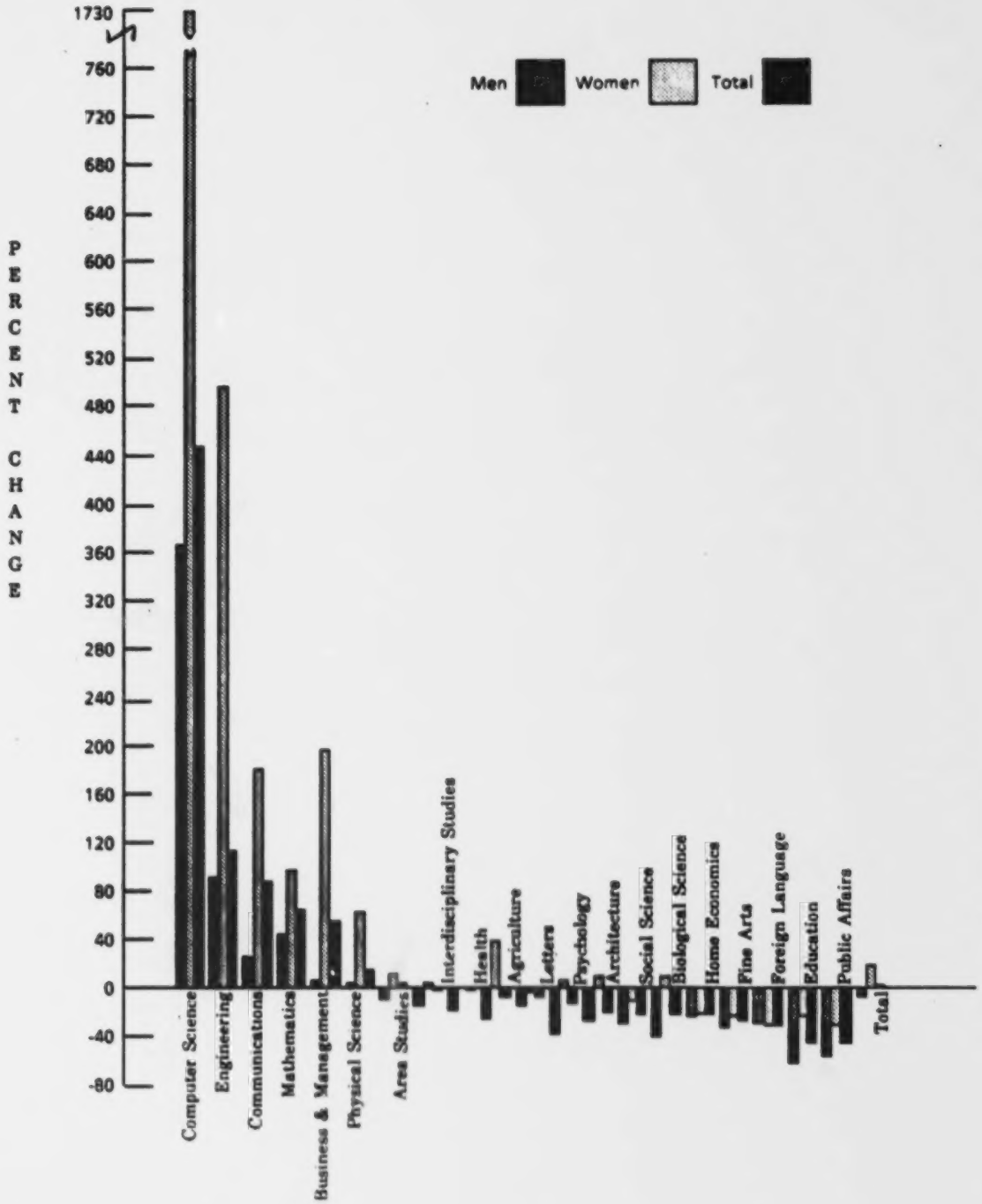
DISPLAY 14 *Ratio of Degrees Awarded to Men and Women in 21 Fields of Study by the University of California and the California State University, Selected Years, 1976-77 to 1985-86*

Discipline	Bachelor's				Master's				Doctorates			
	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81*	1981-82	1985-86
Agriculture	73:27	60:36	62:38	59:41	85:15	61:20	73:27	64:36	95:5	--	86:14	90:10
Architecture	78:22	63:32	70:30	70:30	80:20	57:32	63:37	58:42	92:8	--	62:38	75:25
Area Studies	36:64	36:51	34:66	31:69	42:58	40:48	46:54	46:54	66:37	--	38:63	50:50
Biological Science	64:36	52:43	51:49	49:51	69:31	58:31	57:43	53:47	78:22	--	70:30	63:37
Business and Management	74:26	61:39	59:41	51:49	77:23	66:32	67:33	62:38	91:9	--	82:18	71:29
Communications	61:39	46:53	44:56	41:59	59:41	45:46	43:57	38:62	--	--	--	--
Computer Science	78:22	71:26	68:32	66:34	80:20	80:18	77:23	71:29	88:12	--	86:14	83:17
Education	54:46	47:53	38:62	36:64	35:65	26:74	28:72	26:74	58:42	--	52:48	35:65
Engineering	95:5	89:9	89:11	85:15	95:5	86:8	91:9	88:12	99:1	--	95:5	93:7
Fine Arts	40:60	34:63	37:63	37:63	50:50	45:50	42:58	42:58	46:54	--	43:57	62:38
Foreign Languages	26:74	23:74	24:76	27:73	36:74	35:64	33:67	29:71	48:52	--	29:71	44:56
Health	20:80	17:83	14:86	15:85	29:71	23:74	12:88	12:88	60:40	--	44:56	45:55
Home Economics	3:97	2:96	2:98	3:97	11:89	5:92	5:95	9:91	--	--	--	--
Letters	40:60	36:60	39:61	37:63	43:57	36:61	36:64	37:63	64:36	--	54:46	45:55
Library Science	--	--	--	--	22:78	21:76	18:82	23:77	67:33	--	60:40	60:40
Mathematics	64:36	60:38	61:39	57:43	72:28	68:25	74:26	70:30	85:15	--	88:12	86:14
Physical Science	81:19	74:24	74:26	73:27	84:16	77:17	84:16	73:27	92:8	--	84:16	84:16
Psychology	42:58	33:64	32:68	29:71	51:49	47:52	41:59	33:67	70:30	--	51:49	44:56
Public Affairs	53:47	41:59	41:59	42:58	52:48	38:62	38:62	37:63	46:54	--	33.67	9:91
Social Sciences	57:43	51:46	52:48	52:48	65:35	60:37	59:41	59:41	80:20	--	71:29	58:42
Interdisciplinary Studies	33:67	28:69	29:71	29:71	55:45	48:45	55:45	54:46	70:30	--	66:34	50:50
Total	54:46	49:49	49:51	48:52	54:46	46:50	49:51	47:53	79:21	--	71:29	66:34

* Percentage changes in the number of Ph.D.s awarded to men and women are not provided because University of California data on the sex of degree recipients for 1980-81 are incomplete, precluding percentage computations.

Source: California Postsecondary Education Commission.

DISPLAY 15 ***Percent Change in Bachelor's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1985-86***



Source: California Postsecondary Education Commission.

percentage of bachelor's degrees awarded to women in 1985-86 was engineering (approximately 15 percent), while the highest was home economics (97 percent).

Master's degrees

A number of trends are notable regarding the number of master's degrees awarded by the University and the State University between 1976-77 and 1985-86:

First, the number of master's degrees awarded to women increased by 295 or 4.1 percent, while that for men decreased by 1,952 or 22.6 percent. This increase for women reversed the ratio of degrees awarded to men and women from 54:46 in 1976-77 to 47:53 in 1985-86 -- almost exactly the same ratio shifts as those at the baccalaureate level (Display 14).

The four most popular disciplines for women (education, health, public affairs, and business and management) were identical in both 1976-77 and 1985-86. The same phenomenon held for men, with the greatest number of degrees being in business and management, engineering, education, and the social sciences.

The increased concentration of degrees awarded in fewer fields of study described earlier for men at the baccalaureate level also took place for men and women at the master's level. In 1985-86, the four most popular disciplines for men at the master's level accounted for approximately 56.5 percent of the total number of degrees awarded, while the four disciplines favored most by women during the same year accounted for 61.0 percent of their total.

The largest percentage increase over the past decade in the number of master's degrees awarded to both men and women occurred in computer science -- 135.7 percent and 296.4 percent, respectively (Displays 16 and 17, pages 36 and 37). Although the total number of master's conferred in this discipline are rather small as a percent of the total number of master's degrees conferred, this overall increase is still noteworthy, in that the discipline continues to attract more and more graduate students each year.

Finally, the three disciplines with the largest proportion of women in 1985-86 were home economics, health, and library science, at 91, 88, and 77 percent, respectively. Those with the smallest representation were engineering, physical sciences, and computer science, at 12, 27, and 29 percent, respectively.

Doctorates

The displays in Appendix B indicate that between 1976-77 and 1985-86, the number of doctorate degrees awarded to men decreased by 12.4 percent. Among the larger disciplines, men experienced their greatest declines in the social sciences (down 57.5 percent), while the greatest percentage gain was in the physical sciences (up 9.7 percent). The four most popular fields among men in 1976-77 and 1985-86 were the biological sciences, the physical sciences, engineering, and the social sciences, although the percent of total doctorates awarded in the social sciences decreased sharply. These four fields produced approximately 54 percent of the doctorates awarded to men in 1976-77 and roughly 47.2 percent in 1985-86.

Across almost all disciplines, women increased both their number and percentage of doctoral degrees. Overall, their number of doctoral degrees increased by 65.7 percent. Among the larger disciplines, women noted marked increases in the biological/life sciences and the social sciences.

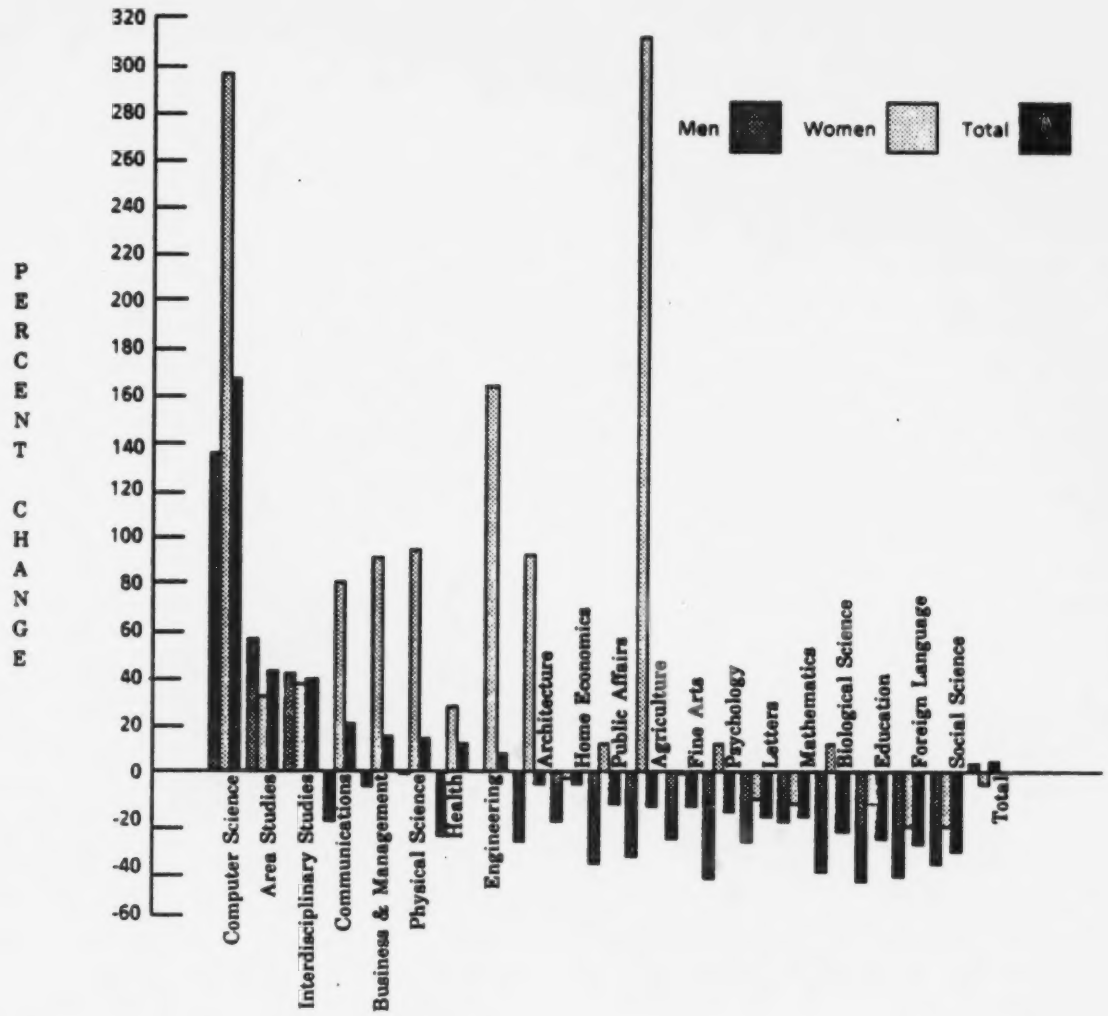
The overall ratio of doctoral degrees awarded to men and women changed from 79:21 percent in 1976-77 to 66:34 percent in 1985-86 (Display 14). The three fields with the largest proportion of men to women in 1985-86 were engineering (93 percent), mathematics (86 percent), and physical science (84 percent). The fields with the highest percentage representation of women were public affairs (91 percent), education (55 percent), and foreign languages and psychology (both with 56 percent).

DISPLAY 16 ***Percentage Change in the Number of Master's Degrees Awarded to Men and Women in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81, 1981-82 to 1985-86, and 1976-77 to 1985-86***

Discipline	1976-77 to 1980-81			1981-82 to 1985-86			1976-77 to 1985-86		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agriculture	-30.4	+38.1	-1.7	-35.5	-1.1	-26.3	-36.0	+109.5	-14.8
Architecture	-12.0	+95.0	+23.5	-29.0	-14.2	-23.5	-30.4	+91.7	-5.5
Area Studies	0.0	-11.8	+5.1	+2.6	+2.3	+2.4	+56.0	+32.3	+42.4
Biological Science	-23.6	-10.9	-10.0	-20.6	-4.9	-13.9	-42.9	+12.6	-25.6
Business and Management	-6.4	+55.7	+10.1	-10.8	+9.3	-4.2	-6.7	+91.5	+15.6
Communications	-31.7	0.0	-10.8	+11.9	+38.2	+26.8	-21.7	+81.0	+20.6
Computer Science	+80.9	+64.3	+82.5	+12.0	+50.0	+20.9	+135.7	+296.4	+167.1
Education	-36.2	+2.8	-14.1	-24.5	-17.5	-19.4	-47.0	-13.8	-28.5
Engineering	-12.0	+60.6	-3.0	-4.1	+35.9	-0.5	-0.1	+163.6	+8.1
Fine Arts	-14.9	-6.3	-6.0	-12.0	-11.9	-11.9	-28.8	-1.9	-15.2
Foreign Languages	-22.5	-18.1	-18.0	-26.9	-11.9	-16.8	-44.9	-23.2	-31.1
Health	-6.9	+23.8	+18.4	0.0	+5.3	+4.3	-27.5	+28.2	+11.9
Home Economics	-42.8	+19.5	+15.7	+37.5	-27.1	-23.9	-21.4	-4.2	-6.1
Letters	-30.6	-12.8	-18.1	-41.1	+38.4	-2.0	-30.0	-11.6	-17.4
Mathematics	-43.0	-46.4	-40.0	-0.7	+24.5	+5.8	-21.8	-14.1	-19.6
Physical Science	+10.4	+30.9	+19.8	-24.7	+46.6	-13.1	-1.7	+94.5	+13.7
Psychology	-24.3	-14.2	-19.1	-29.5	+0.6	-11.9	-45.7	+11.6	-17.4
Public Affairs	-21.2	+36.2	+6.5	-18.2	-14.4	-15.8	-39.6	+12.0	-14.7
Social Science	-28.3	-18.6	-22.7	-13.3	-13.1	-13.2	-39.9	-24.1	-34.3
Interdisciplinary Studies	-14.2	0.0	-1.0	-19.4	-14.7	-17.3	+33.0	+41.9	+37.0
Total	-18.6	+4.5	-5.0	-12.8	-6.2	-9.4	-22.6	+4.1	-5.7

Source: California Postsecondary Education Commission.

DISPLAY 17 ***Percent Change in Master's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1985-86***



Source: California Postsecondary Education Commission.

4 *Degree Choices of Minority Students*

THE laws and regulations governing the collection of ethnicity data make it difficult to accurately report changes in degree awards to minority students. (Appendix D explains the difficulties involved in the collection and use of these ethnic data.) The information that can be obtained from student ethnicity data must be developed by employing assumptions about student characteristics and reporting the data accordingly. Unfortunately, many of the assumptions used in this report are largely untested, and the conclusions reported in this chapter must therefore be considered tentative.

Three terms are used throughout this chapter to describe different portions of the student population. The first, "Students Who Declared Their Ethnicity" (SWDTE), is a five-element subset of the eight categories used by colleges and universities to report student ethnicity. Under federal and state statutes, student ethnicity declarations have been collected for the following categories:

1. Black Non-Hispanic
2. Hispanic
3. Asian (including Pacific Islander and Filipino)
4. Native American
5. White
6. Other (not covered under categories 1-5)
7. Students Who Declined to State Their Ethnicity
8. Non-Resident Alien

All of these categories (and particularly the non-resident alien category) are mutually exclusive; students reported in one category may *not* appear in another. The SWDTE population is defined as those U.S. residents *who specifically declared their ethnic origin*. To develop SWDTE data from the eight categories described above, the "non-resident alien," "other" and "declined to state" categories are discarded and only those students in ethnic categories 1-5 above are used in computations of ethnic representation. Such a methodology assumes that the distribution of students by ethnicity in the "declined to state" and "other" categories is the same (or approximately the same) as for those U.S. resident students who specifically declare their ethnic origin.

Further, SWDTE data acknowledges that the ethnic distribution of non-resident aliens is not known and assumes, for the purposes of this report, that their ethnicity declarations are of little interest in terms of reporting degrees awarded to California's student population.

Two other phrases -- *all minorities* and *underrepresented minorities* -- are used throughout this chapter; both are subsets of the SWDTE population.

- *All minorities* is defined as that group of SWDTE students who declared their ethnicity in categories 1-4 (all non-white students).
- *Underrepresented minorities* -- a subset of *all minorities* -- includes only those students who reported their ethnicity as Black, Hispanic, or Native American.

The latter phrase is useful in this chapter in describing changes in student demand that have taken place within that subset of the student population that has traditionally been underserved in California's postsecondary education. It is used for comparing differences in student enrollment and degree award patterns between these students and those who are more adequately represented -- generally, white and Asian students. The phenomenon of differential enrollment patterns for different ethnic groupings is particularly significant in computer science, engineering, mathematics, and the physical sciences, where white and Asian students have historically exhibited similar enrollment and degree award rates.

Bachelor's degrees

The top three disciplines in terms of numbers of baccalaureate degrees awarded by the University of California and the California State University to graduates in the "all minorities" category in both the 1976-77 and 1985-86 academic years were the social sciences, business and management, and biological sciences. These three disciplines accounted for slightly more than 42 percent of the total number of

baccalaureate degrees awarded in 1976-77, and accounted for about 40 percent in 1985-86.

As Display 18 indicates, the disciplines in which bachelor's degree recipients in the "all minorities" category represented the greatest proportion of the 1976-77 graduating class in that discipline were foreign languages (25.7 percent), public affairs (22.3 percent), and health (21.9 percent). In 1985-86 the three disciplines with the greatest proportion of graduates in this category were area studies (45.2 percent), engineering (35.5 percent), and mathematics (34.3 percent).

Overall, students in the "all minorities" category recorded a 54.2 percent increase in the number of bachelor's degrees awarded over the 1976-77 to 1985-86 period. The three disciplines recording the largest percentage gain in the number of bachelor's degrees (Displays 19 and 20, pages 40 and 41) were computer science (1,344.4 percent), engineering (302.2 percent), and mathematics (188.4 percent). Only five disciplines showed decreases: education (-34.0 percent), public affairs (-19.1 percent), foreign languages (-13.6 percent), social sciences (-8.7 percent), and home economics (-7.4 percent). (Appendix E contains displays similar to Display 20 for each of the two five-year periods in the decade.)

Considering only those students classified in the "underrepresented minorities" category (Black, Hispanic, and Native American), bachelor's degrees awarded over the 1976-77 through 1985-86 period increased 29.6 percent. For these graduates in 1976-77, the top three fields in the *number* of bachelor's degrees awarded were the social sciences, interdisciplinary studies, and business and management, respectively. In 1985-86, these three fields remained the most popular, but business and management replaced social sciences in the top position. In 1976-77, these three disciplines accounted for approximately 48 percent of the total number of bachelor's degrees awarded to underrepresented minorities, compared to about 41 percent in 1985-86. The fields with the highest *percentage* representation of these selected minorities in 1976-77 were foreign languages (20.7 percent), public affairs (17.4 percent), and social sciences (14.1 percent). By 1985-86 the disciplines with the greatest representation had shifted to area studies (39.2 percent), public affairs (24.8 percent), and foreign languages (21.7 percent). Disciplines with the lowest representation by 1985-86 were computer science (6.2 percent), the physical sciences (6.3 percent), and agriculture (6.5 percent).

One of the most interesting trends at the baccalaureate level for both "all minority" and "underrepresented minority" categories was the rate of change of degree awards by discipline. As Display 19 notes, degree recipients in both of these categories recorded larger *percentage* increases in the "growth" fields of computer science, engineering, business and management, mathematics, and communications than did the overall SWDTE population. This condition proved particularly noteworthy in communications, where underrepresented minority graduates recorded higher *percentage* increases in baccalaureate awards than did either the "all minorities" category (that is, underrepresented minorities plus Asians), or the total graduating class. Some of the spectacular increases in these percentages are clearly attributable to small numbers (for example, underrepresented minority graduates in computer science increased from 16 to 121 over the 1976-77 to 1985-86 period – a 656.3 percent increase), but the consistency of the increases in bachelor's degrees awarded to "all minorities" and "underrepresented minorities" in the growth disciplines suggests that other factors such as improved secondary school counseling, expanded collegiate level outreach programs, support programs such as the Minority Engineering Program, and increased awareness among minority students of the linkage between the growth fields and job opportunities may have influenced their selection of majors.

Master's degrees

"All minorities" (including Asian students) and "underrepresented minorities" at the University and State University recorded impressive increases in both the number and percentage of master's degrees awarded over the 1976-77 to 1985-86 period (Displays 21 and 22, pages 42 and 43). Master's degree recipients in the "all minorities" category posted a 17.4 percent increase (318 degrees), while those in the "underrepresented minorities" category noted a 9.6 percent (102 degrees) rise. These percentage gains did not, however, translate into substantial increases in the overall representation of "all minorities" and "underrepresented minorities" in the graduating class. Between the 1976-77 and 1985-86 academic years, the percentage of master's degrees

DISPLAY 18 ***Percent of Bachelor's Degrees Awarded in 20 Fields of Study to Underrepresented Minorities and All Minorities, Expressed as a Percent of Those Students Who Declared Their Ethnicity, by the University of California and the California State University, 1976-77 to 1985-86***

	Underrepresented Minorities				All Minorities			
Field of Study	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81	1981-82	1985-86
Agriculture	3.9	5.6	5.4	6.5	8.8	12.2	11.1	12.2
Architecture	8.8	10.0	11.8	10.8	19.3	22.6	28.6	28.7
Area Studies	9.3	15.8	53.5	39.2	20.1	21.8	58.6	45.2
Biological Science	5.3	8.5	7.5	8.9	17.7	24.4	24.1	29.5
Business and Management	9.4	11.2	11.0	12.0	19.5	24.1	23.8	26.2
Communications	10.1	11.1	11.2	13.1	13.9	15.6	16.1	17.2
Computer Science	4.4	6.4	4.9	6.2	14.9	27.2	30.4	40.0
Education	12.1	14.5	15.5	14.8	18.4	22.1	21.7	20.6
Engineering	6.2	7.1	7.1	8.2	21.0	28.7	29.0	35.5
Fine Arts	7.7	9.4	9.0	10.0	13.1	16.6	15.5	18.4
Foreign Languages	20.7	26.7	22.9	21.7	25.7	33.5	30.9	29.6
Health	11.0	12.2	10.3	12.4	21.9	23.8	23.1	26.5
Home Economics	5.9	9.6	7.7	9.9	16.3	19.4	18.2	18.5
Letters	6.5	8.4	9.1	8.1	9.5	12.5	13.6	13.7
Mathematics	6.3	6.0	4.5	7.8	19.8	25.9	27.0	34.3
Physical Science	4.4	6.5	5.3	6.3	11.0	17.7	15.5	17.3
Psychology	10.8	13.8	14.5	12.8	16.2	21.7	22.5	20.8
Public Affairs	17.4	23.4	26.0	24.8	22.3	31.0	32.7	30.4
Social Science	14.1	12.2	13.3	12.8	19.4	17.2	19.8	20.8
Interdisciplinary Studies	10.1	14.8	14.4	13.6	14.9	20.8	19.8	20.5
Total	10.1	12.4	11.7	11.6	17.4	21.4	22.1	23.9

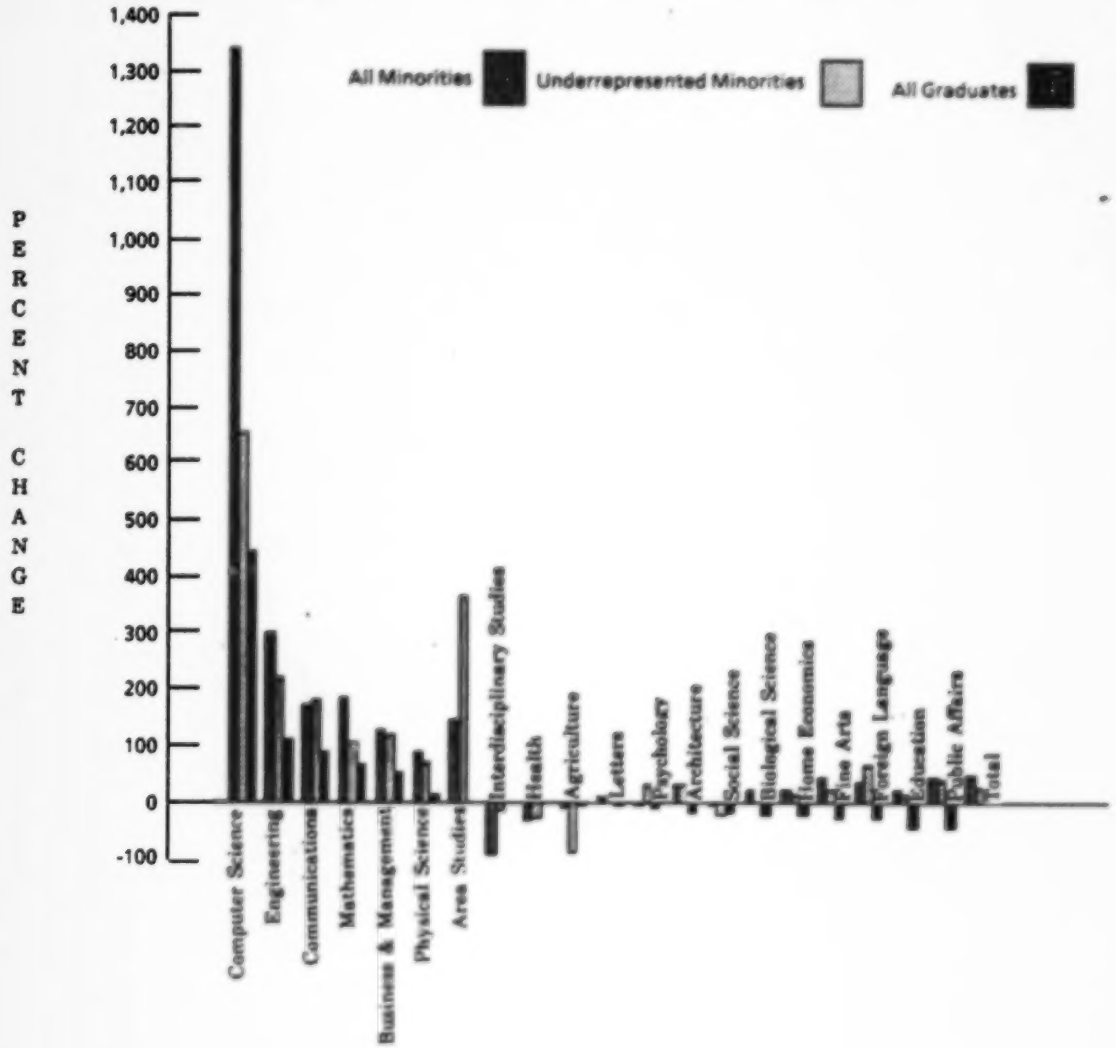
Source: California Postsecondary Education Commission.

DISPLAY 19 ***Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, Students Who Declared Their Ethnicity ("SWDTE"), and All Graduates by the University of California and the California State University, 1976-77 to 1985-86***

Field of Study	1976-77 to 1980-81				1981-82 to 1985-86				1976-77 to 1985-86			
	All Minorities	Underrepresented Minorities	SWDTE	All Graduates	All Minorities	Underrepresented Minorities	SWDTE	All Graduates	All Minorities	Underrepresented Minorities	SWDTE	All Graduates
Agriculture	+42.7	+47.6	+3.0	+7.0	-3.9	+4.0	-12.4	-20.6	+37.1	+65.1	-0.8	-8.3
Architecture	+7.5	+3.6	-8.3	-7.6	-10.8	-18.8	-11.1	-16.0	+24.2	+1.8	-16.5	-20.3
Area Studies	-32.6	+5.0	-37.9	-29.2	-37.1	-40.0	-18.3	-24.1	+148.8	+365.0	+10.7	+4.3
Biological Sciences	-3.9	+11.0	-30.1	-25.3	+38.5	+35.9	+13.3	+5.5	+35.0	+35.9	-18.8	-22.9
Business and Management	+55.1	+50.2	+25.7	+30.4	+30.9	+30.0	+19.0	+6.7	+131.8	+120.5	+72.6	+56.0
Communications	+52.9	+48.4	+36.1	+33.7	+49.2	+63.1	+39.9	+19.2	+172.9	+185.5	+121.1	+87.5
Computer Science	+224.1	+156.3	+77.1	+97.2	+183.6	+175.0	+115.2	+105.4	+1,344.4	+656.3	+437.2	+447.8
Education	+0.0	+0.3	-16.6	-12.7	-14.5	-13.8	-10.0	-20.2	-34.0	-27.8	-40.9	-45.5
Engineering	+102.4	+71.5	+48.3	+56.7	+68.8	+61.1	+38.0	+14.0	+302.2	+218.8	+138.5	+113.3
Fine Arts	+2.9	-1.1	-18.8	-13.6	+14.5	+8.1	-3.3	-14.3	+9.4	+1.5	-21.9	-28.0
Foreign Languages	-0.8	-2.0	-23.9	-22.6	-4.1	-21.7	0.0	-8.5	-13.6	-90.8	-25.0	-31.6
Health	+16.8	+18.9	+7.5	+13.4	+7.0	+12.4	-6.8	-14.3	+26.3	+16.9	+4.1	-3.2
Home Economics	-8.9	+24.6	-23.2	-19.1	+3.5	+30.6	+2.3	-8.3	-7.4	+36.2	-18.0	-23.6
Letters	+3.2	+0.5	-22.2	-17.6	+22.5	+8.5	+21.4	+10.0	+46.6	+25.4	+1.0	-8.8
Mathematics	+0.6	-26.5	-22.9	-15.9	+177.6	+274.1	+118.5	+92.9	+188.4	+106.1	+66.7	+63.7
Physical Science	+48.4	+37.3	-8.1	+0.6	+34.4	+41.9	+20.3	+9.8	+89.1	+72.5	+19.6	+14.9
Psychology	+12.9	+8.1	-15.7	-14.1	+6.3	+1.3	+14.9	+1.6	+25.3	+15.9	-2.3	-13.0
Public Affairs	+3.1	-0.2	-25.9	-20.8	-18.5	-16.4	-12.4	-24.2	-19.1	-15.4	-40.7	-45.6
Social Sciences	-22.2	-24.3	-12.4	-25.3	+21.6	+9.5	+15.7	+4.4	-8.7	-24.3	-14.9	-22.2
Interdisciplinary Studies	+21.2	+27.6	-13.1	-5.3	+18.9	+8.2	+14.3	+3.3	+45.8	+43.6	+6.0	-2.1
Total	+15.6	+15.8	-6.1	-3.8	+25.5	+15.4	+16.0	+3.9	+54.0	+29.6	+12.2	+3.5

Source: California Postsecondary Education Commission.

DISPLAY 20 ***Percent Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1985-86***



Source: California Postsecondary Education Commission.

awarded to "all minorities" increased from 16.7 to 19.4 percent of the statewide SWDTE total, while underrepresented minority degree recipients rose only from 10.1 to 10.6 percent.

Among both "total minorities" and "underrepresented minorities" at the master's level, the most popular fields in both the 1976-77 and 1985-86 academic years were education, business and management, and public affairs (Display 23, page 44). While business and management and public affairs experienced an overall 17.6 percent and 14.4 percent jump, respectively, in the number of master's degrees awarded to "underrepresented minorities" over this ten-year period, education experienced a 9.1 percent decline.

Furthermore, there was little shifting of graduates among these three most popular disciplines. These three popular disciplines represented 52.2 percent of the total number of master's degrees awarded to graduates in the "minorities" category in 1976-77,

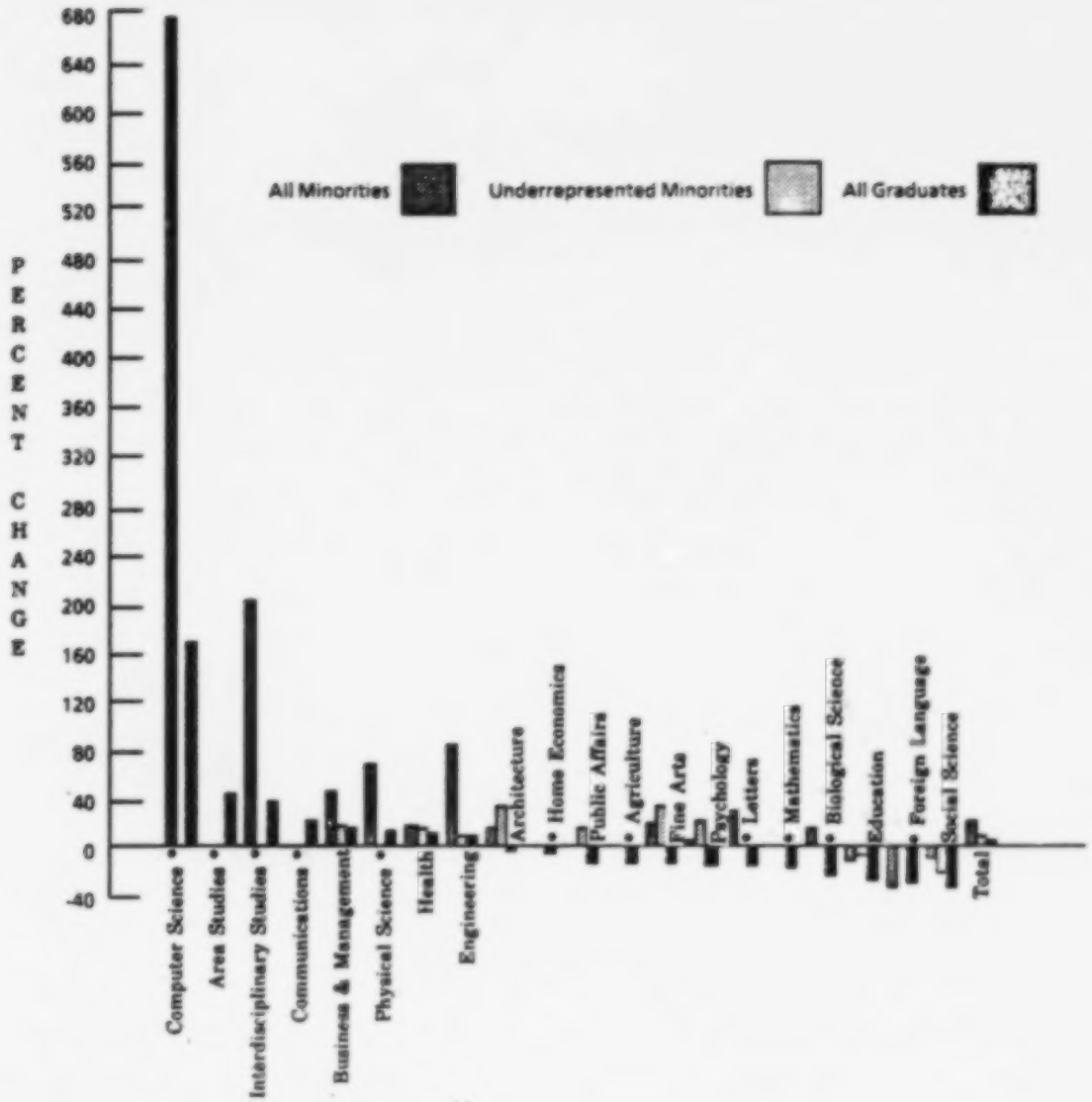
DISPLAY 21 ***Percentage Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, Students Who Declared Their Ethnicity ("SWDTE"), and All Graduates by the University of California and the California State University, 1976-77 to 1980-81, 1981-82 to 1985-86, and 1976-77 to 1985-86***

General Field of Study	1976-77 to 1980-81				1981-82 to 1985-86				1976-77 to 1985-86			
	All Minorities	Underrepresented Minorities	SWDTE	All Graduates	All Minorities	Underrepresented Minorities	SWDTE	All Graduates	All Minorities	Underrepresented Minorities	SWDTE	All Graduates
Agriculture	*	*	-48.5	-1.7	*	*	-2.4	-26.3	*	*	-3.0	-14.8
Architecture	-13.6	-8.0	-12.6	+23.5	+18.6	+32.0	-13.7	-23.5	+15.9	+32.0	-6.0	-5.5
Area Studies	*	*	-46.8	5.1	+127.3	+120.0	+29.8	+2.4	*	*	+29.8	+42.4
Biological Sciences	-41.5	-64.7	-36.6	-10.0	+11.9	+26.7	-2.5	-13.9	+14.6	*	-17.7	-25.6
Business and Management	-60.8	-61.8	-51.0	+10.1	-8.6	-9.8	+2.4	-4.2	+45.3	+17.6	+28.8	+15.6
Communications	*	*	-67.2	-10.8	*	*	+25.4	+26.8	*	*	+61.5	+20.6
Computer Science	*	*	-23.1	+82.5	+158.3	*	+47.5	+20.9	+675.0	*	+151.0	+167.1
Education	-3.6	-3.5	-8.1	-14.1	-11.7	-11.1	-6.5	-19.4	-13.0	-9.1	-10.9	-28.5
Engineering	+6.0	-19.0	-19.1	-3.0	+51.5	+15.0	+21.1	-0.5	+83.2	+9.5	+14.1	+8.1
Fine Arts	-16.9	-16.3	-18.4	-6.0	+3.7	+18.8	+0.2	-11.9	+19.7	+32.6	-9.8	-15.2
Foreign Languages	-5.7	0.0	-23.8	-18.0	-11.5	-21.7	-9.3	-16.8	-34.3	*	-32.0	-31.1
Health	+14.6	+5.2	+17.1	+18.4	+11.6	+6.7	+12.9	-4.3	+16.6	+15.6	+24.6	+11.9
Home Economics	*	*	+21.1	+15.7	-39.3	*	-8.3	-23.9	*	*	+5.3	-6.1
Letters	-20.0	+22.7	-21.2	-18.1	-6.3	-27.3	+6.3	-2.0	+28.6	*	-12.5	-17.4
Mathematics	*	*	-53.9	-40.0	+21.1	*	+5.4	+5.8	0.0	*	-35.0	-19.6
Physical Science	*	*	-7.1	+19.8	0.0	*	+2.2	-13.1	+66.7	*	+9.4	+13.7
Psychology	+6.3	+21.4	+3.4	-19.1	0.0	0.0	+12.3	-11.9	+4.8	+21.4	+3.2	-17.4
Public Affairs	+20.9	+25.8	+10.1	+6.5	-10.7	-4.4	-6.3	-15.8	+1.1	+14.4	-2.7	-14.7
Social Sciences	-22.4	-20.8	-29.4	-22.7	+18.9	+16.7	+0.4	-13.2	-10.2	-22.2	-23.3	-34.3
Interdisciplinary Studies	+27.3	+12.5	+6.1	-1.0	+43.5	+107.7	+2.9	-17.3	+200.0	*	+114.3	+37.0
Total	-8.0	-6.0	-16.6	-5.0	+5.5	-3.9	+2.6	-9.4	+17.4	+9.6	+4.1	-5.7

* Number too small to permit percentage computation.

Source: California Postsecondary Education Commission.

DISPLAY 22 Percent Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1985-86



* Numbers too small to permit percentage comparisons for all minorities and/or underrepresented minorities.

Source: California Postsecondary Education Commission.

and 51.2 percent in 1985-86. The highest concentration of "total minority" degree recipients (measured in terms of their proportions of their graduating classes in each discipline) occurred in the fields of public affairs, engineering, and architecture during the 1976-77 academic year. By 1985-86, a noticeable shift had taken place. In that year, area studies, computer science, and engineering enrolled the highest concentration of "all minorities."

In 1976-77, underrepresented minority students accounted for 17.1 percent of the total number of master's degrees awarded in public affairs. In 1985-86 public affairs claimed 20.2 percent, but was replaced

DISPLAY 23 ***Percent of Master's Degrees Awarded in 20 Fields of Study to Underrepresented Minorities and All Minorities, Expressed as a Percent of Those Students Who Declared Their Ethnicity, by the University of California and the California State University, 1976-77 to 1985-86***

	Underrepresented Minorities				All Minorities			
Field of Study	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81	1981-82	1985-86
Agriculture	3.0	8.2	7.9	3.8	9.1	12.9	14.0	7.5
Architecture	11.6	12.2	10.7	16.3	20.5	20.2	18.4	25.2
Area Studies	8.5	8.0	21.3	36.1	10.6	8.0	23.4	41.0
Biological Science	4.4	3.6	4.6	6.0	10.6	14.4	12.9	14.8
Business and Management	7.8	6.1	8.1	7.1	16.2	12.9	20.5	18.3
Communications	3.8	5.9	6.0	7.1	5.8	29.4	6.0	13.1
Computer Science	2.9	3.8	1.7	1.2	11.5	8.8	20.3	35.6
Education	14.6	15.4	15.7	14.9	20.2	21.1	20.8	19.6
Engineering	5.4	5.4	5.5	5.2	21.6	28.3	27.7	34.7
Fine Arts	6.8	7.0	8.4	10.0	11.2	11.4	14.1	14.9
Foreign Languages	14.0	18.3	17.8	15.4	20.3	25.2	20.2	19.7
Health	10.3	9.2	10.1	9.5	16.8	16.5	15.9	15.7
Home Economics	8.4	9.6	15.6	8.0	17.9	20.9	25.7	17.0
Letters	4.1	6.3	7.4	5.1	6.4	6.5	10.7	9.5
Mathematics	5.0	7.2	5.4	8.6	12.8	19.3	17.1	19.7
Physical Science	2.0	3.4	4.0	5.7	8.2	11.4	12.8	12.5
Psychology	10.3	12.1	13.6	12.1	15.4	15.9	17.6	15.7
Public Affairs	17.1	19.6	19.8	20.2	23.6	25.9	25.8	24.6
Social Science	10.4	11.7	9.1	10.6	14.2	15.6	14.0	16.6
Interdisciplinary Studies	8.2	8.7	6.4	12.9	11.2	13.5	11.3	15.7
Total	10.1	11.3	11.3	10.6	16.7	18.4	18.9	19.4

Source: California Postsecondary Education Commission.

as the discipline with the largest proportion of underrepresented minorities by area studies with 36.1 percent.

The disciplines with the lowest representation of master's degree recipients classified as all minorities in 1985-86 included agriculture (7.5 percent), letters (9.5 percent), and the physical sciences (12.5 percent). For underrepresented minorities, computer science (1.2 percent), agriculture (3.8 percent), letters (5.1 percent), and engineering (5.2 percent) posted the lowest proportions of master's recipients.

Doctorates

Doctoral degree recipients classified as "all minorities" and "underrepresented minorities" fared differently over the ten-year period. While the percentage of all doctorates awarded by the public segments increased by 4.1 percent, degrees awarded to "all minorities," with a smaller base, rose 51.9 percent (69 degrees). Doctorates awarded to underrepresented minorities, however, dropped by 10.6 percent (10 degrees). Graduates in the "all minorities" category rose from 6.7 percent to 9.8 percent of the total graduating class at the University over the 1976-77 to 1985-86 period while underrepresented minorities held steady at about 4 percent of the total number of doctorates granted in both years.

The relatively small number of degree recipients at the doctorate level precluded the development of detailed figures describing the distribution of total minority and underrepresented minority graduates by discipline. The data do reveal, however, that graduates in the total minorities category are generally concentrated in education, health, social science, and the liberal/multidisciplinary studies (Display 24, page 46), and that the number of doctoral recipients in engineering increased from seven to thirty-three between 1976-77 and 1985-86.

DISPLAY 24 *Percent of Doctorates Awarded in 20 Fields of Study to Underrepresented Minorities and All Minorities, Expressed as a Percent of Those Students Who Declared Their Ethnicity, by the University of California and the California State University, 1976-77 to 1985-86*

	Underrepresented Minorities				All Minorities			
Field of Study	1976-1977	1980-1981	1981-1982	1985-1986	1976-1977	1980-1981	1981-1982	1985-1986
Agriculture	6.3	10.0	8.3	12.5	6.3	10.0	12.5	25.0
Architecture	33.3	0	9.1	0	33.3	33.3	9.1	9.1
Area Studies	0	25.0	33.3	0	0	25.0	50.0	15.4
Biological Science	4.5	1.9	5.3	4.6	8.9	11.4	14.6	11.7
Business and Management	6.5	15.4	11.1	15.4	6.5	23.1	27.8	15.4
Communications	--	--	--	--	--	--	--	--
Computer Science	0	6.3	0	4.0	14.3	18.6	0	16.0
Education	16.8	10.5	17.1	20.6	18.5	14.0	21.6	23.7
Engineering	4.2	6.4	2.7	2.4	12.5	27.3	22.3	26.0
Fine Arts	4.0	5.6	8.3	4.8	4.0	5.6	8.3	4.8
Foreign Languages	13.9	10.5	26.1	17.5	16.7	10.5	30.4	20.0
Health	8.6	7.3	6.0	9.6	14.3	12.2	12.0	16.4
Home Economics	0	--	--	--	50.0	--	--	--
Letters	10.0	6.3	2.9	7.8	10.0	6.3	4.3	11.7
Mathematics	7.0	8.3	5.3	2.3	7.0	22.2	15.8	11.6
Physical Science	5.0	1.4	1.7	2.7	7.7	6.2	10.3	13.3
Psychology	4.5	9.7	11.9	16.2	4.5	12.9	16.4	20.6
Public Affairs	28.6	25.0	7.1	10.0	28.6	25.0	28.6	30.0
Social Science	6.9	12.5	5.3	9.1	9.0	17.5	9.2	14.8
Interdisciplinary Studies	7.7	--	12.9	10.5	7.7	6.3	19.4	10.5
Total	7.2	5.2	6.6	5.8	10.1	11.7	14.6	14.1

Source: California Postsecondary Education Commission.

5 *Degree Choices of Foreign Students*

THE same eight categories of data that California's colleges and universities have used to ask students about their ethnicity (listed on page 37 above) are used to distinguish foreign students from other students, as follows:

- Only students who report themselves to be "nonresident aliens" are classified as "foreign" students."
- Students who declared their ethnicity in one of the five ethnic categories are assumed to be U.S. residents -- that is, either U.S. citizens or non-citizens residing in the U.S. as permanent residents.
- Similarly, students reported in the "other" or "declined to state" categories are, for the purpose of this chapter's discussion, assumed to be U.S. residents.

Clearly, these three assumptions are somewhat arbitrary. To the extent that they are inaccurate, this chapter probably understates the number of foreign students who graduated between 1976-77 and 1985-86. However, as the discussion of student ethnicity data in Appendix D indicates, the self-reported nature of ethnicity data offer a strong potential for unreliability. Students who report their status as "nonresident aliens" may or may not be foreign students, just as those who report their ethnicity as "white" or "Hispanic" may or may not be U.S. residents. Under these circumstances, the three assumptions seem to the Commission staff the best for reporting trends in foreign student degrees, but their accuracy is unknown.

Bachelor's degrees

Foreign graduates at the baccalaureate level in both the University of California and the California State University increased substantially in both number and percentage over the past decade. However, in recent years, both their number and percentage have begun to decrease. Several factors have contributed to this recent decline, including political instability or policy changes in their own countries, such as Iran; the increase of domestic students, who receive first choice for admittance in high demand, impacted programs; and cost factors that may render attendance at public four-year institutions prohibitively expensive for foreign students.

Statewide, although the number of bachelor's degrees awarded to foreign students increased by 106.8 percent between 1976-77 and 1980-81, since 1981-82 this percentage decreased by 31.5 percent for a total ten-year gain of 44.5 percent (Display 25, page 48). When considered in relation to the State's overall baccalaureate degree production, foreign students increased their share of the total from 2.1 percent in 1976-77 to 4.5 percent in 1980-81 (Display 26, page 49), but decreased their share of such degrees from 4.4 percent in 1981-82 to 3.0 percent in 1985-86. During the first five-year period of the decade, the number of foreign student graduates declined in only one discipline category, foreign languages. During the latter half, however, foreign student graduates, as a percent of total graduates, declined in each discipline, except computer science -- a discipline in which their numbers increased steadily over the past decade.

In 1985-86, the proportion of foreign students receiving bachelor's degrees ranged from a low of 0.2 percent in public affairs to a high of 9.7 percent in computer science. The number of foreign graduates receiving bachelor's degrees more than doubled in three of the 19 disciplines examined over the ten-year period -- computer science, mathematics, and the physical sciences (Display 27, page 50). (The displays in Appendix F provide similar information for each of the two five-year periods in the decade.)

The pattern of foreign student baccalaureates differed somewhat from U.S. residents throughout the past decade, but like that of U.S. residents, it tended toward high technology and business-related fields. In 1976-77, engineering and business and management (the two most popular disciplines) accounted for 25.2 percent of the total number of foreign students' bachelor's degrees, but by 1985-86, these two disciplines accounted for 34.4 percent of the total -- despite the fact that their bachelor's degrees in

DISPLAY 25 *Percentage Change in Bachelor's Degrees Awarded in 21 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1980-81, 1981-82 to 1985-86, and 1976-77 to 1985-86*

Discipline	1976-77 to 1980-81		1981-82 to 1985-86		1976-77 to 1985-86	
	Foreign	Resident	Foreign	Resident	Foreign	Resident
Agriculture	+256.7	+2.9	-69.5	-17.2	+43.3	-9.2
Architecture	+19.1	-8.5	-50.0	-14.4	-28.6	-20.1
Area Studies	*	-30.5	*	*	-25.0	+4.8
Biological Science	+7.5	-26.0	-5.4	+5.8	-18.7	-23.0
Business and Management	+118.1	+27.4	-8.5	+11.7	+90.6	+54.8
Communications	+228.6	+31.0	-60.9	+21.5	+28.6	+88.3
Computer Science	+247.4	+90.2	+153.3	+101.2	+1,100.0	+417.4
Education	+183.0	-15.4	-56.7	-19.1	-38.3	-45.6
Engineering	+133.8	+47.7	-51.6	+26.6	+37.8	+122.1
Fine Arts	+225.0	-15.7	-61.9	-12.6	+27.8	-28.5
Foreign Language	-27.5	-22.4	-48.5	-6.9	-66.7	-30.0
Health	+129.2	+12.3	-47.6	-13.9	-8.3	-3.5
Home Economics	+50.0	-20.1	-50.0	-7.0	-15.0	-23.7
Letters	+76.7	-18.8	-51.5	+11.4	-25.6	-12.5
Library Science	--	--	--	--	*	*
Mathematics	+81.8	-19.6	+59.1	+78.1	+218.2	+57.9
Physical Sciences	+178.8	-3.7	-8.5	+10.9	+127.3	+12.2
Psychology	+39.7	-14.8	-41.7	+2.4	-27.6	-12.9
Public Affairs	+231.8	-22.4	*	*	-86.4	-45.3
Social Sciences	+38.7	-26.2	-25.8	+5.1	-2.0	-22.5
Interdisciplinary Studies	+167.7	-6.4	-57.7	+4.4	+16.1	-2.2
Total	+106.8	-6.2	-31.5	+5.5	+44.5	+2.6

* Numbers too small to permit percentage comparisons.

Source: California Postsecondary Education Commission.

engineering declined by 51.6 percent between 1981-82 and 1985-86. Like U.S. residents, foreign graduates exhibited a strong interest in computer science. Over the ten years studied, their bachelor's degrees in this discipline jumped from 19 to 228 -- an 1100.0 percent increase. Foreign students also differed from U.S. residents in their affinity for three fields that suffered overall declines: agriculture (up 43.3 percent); the fine arts (up 27.8 percent); and interdisciplinary studies (up 16.1 percent).

Computer science proved to be the baccalaureate program in which foreign students represented their greatest percentage of the statewide graduating class in 1985-86. However, throughout most of the decade, engineering was the frontrunner in foreign

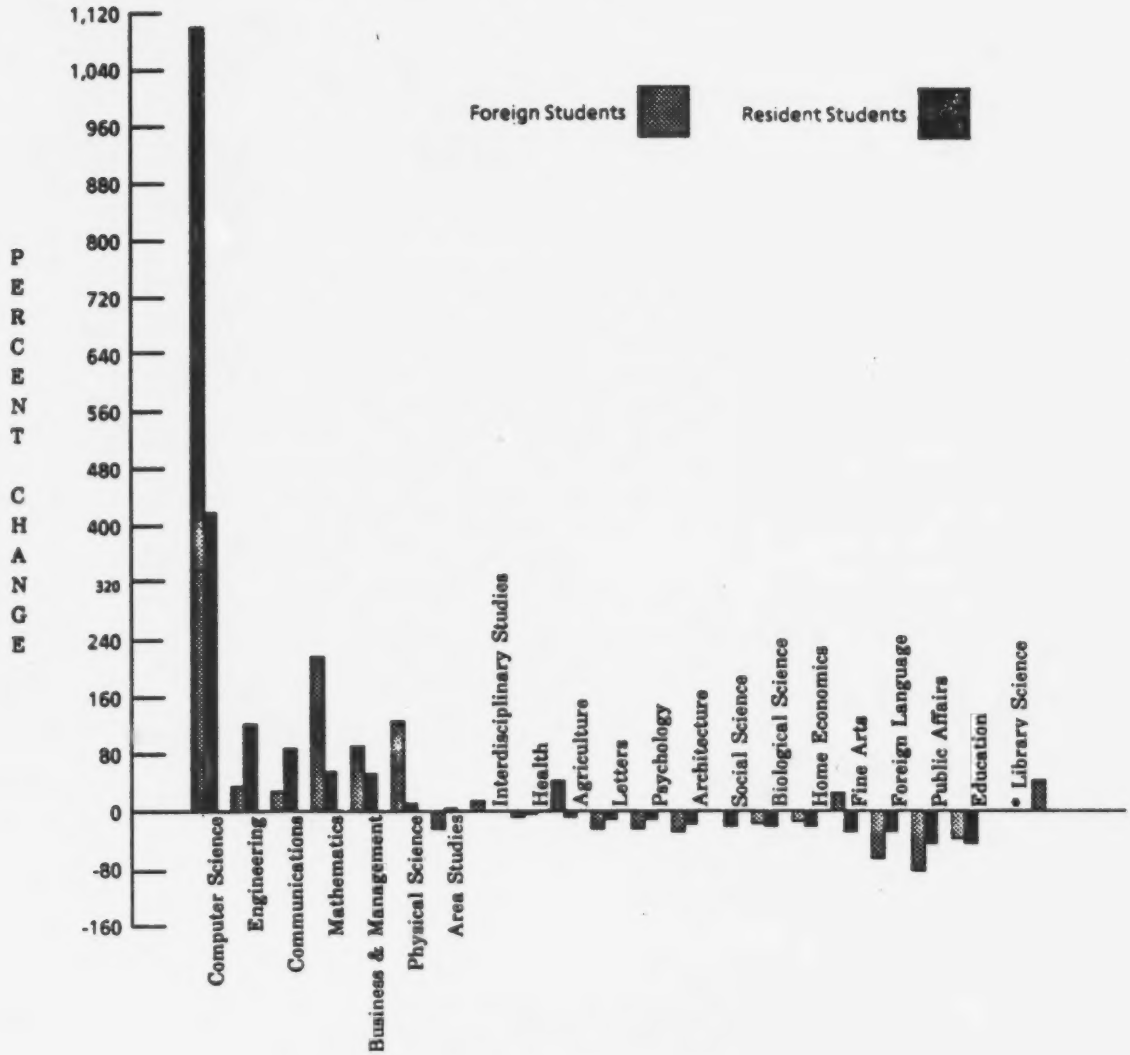
DISPLAY 26 *Degrees Awarded to Foreign Students in 21 Fields of Study by the University of California and the California State University, Expressed as a Percent of the Total Graduating Class in Each Field, 1976-77 Through 1985-86*

Discipline	Bachelor's				Master's				Doctorates			
	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81	1981-82	1985-86	1976-77	1980-81	1981-82	1985-86
Agriculture	1.6%	5.3%	6.4%	2.5%	28.7%	27.1%	31.4%	28.9%	34.2%	22.7%	14.3%	39.0%
Architecture	2.9	3.8	4.4	2.6	12.6	20.7	22.7	18.4	*	*	*	*
Area Studies	1.6	3.4	2.6	1.1	6.8	12.9	26.8	15.5	*	*	*	*
Biological Sciences	2.1	3.0	2.5	2.2	10.3	11.1	10.8	12.0	*	*	*	*
Business and Management	3.3	5.6	4.7	4.1	8.2	12.1	12.8	12.3	27.7	16.1	28.6	50.0
Communi-cations	1.3	3.3	2.8	0.9	5.9	13.2	9.3	17.9	*	*	*	*
Computer Science	4.4	7.8	7.9	9.7	14.7	28.0	27.2	23.8	37.5	35.0	35.7	29.3
Education	1.3	4.4	2.8	1.5	2.2	6.0	5.6	3.4	6.2	13.5	10.8	11.0
Engineering	10.5	15.6	16.0	6.8	28.0	36.1	38.6	31.2	43.2	32.6	45.1	45.3
Fine Arts	0.8	3.2	3.5	1.5	4.3	11.1	8.4	5.4	5.1	10.2	5.7	12.5
Foreign Languages	4.4	4.1	3.8	2.1	11.1	17.5	14.9	13.7	9.3	3.8	11.9	15.8
Health	0.9	1.8	1.4	0.9	5.8	4.2	6.0	6.8	*	*	*	*
Home Economics	1.5	2.7	3.0	1.6	4.5	9.2	6.7	7.3	*	*	*	*
Letters	1.2	2.5	2.2	1.0	5.0	10.8	10.9	8.4	11.7	6.2	19.0	15.7
Library Science	--	--	--	--	1.6	6.4	11.8	5.4	*	*	*	*
Mathematics	3.6	7.8	8.5	7.0	15.2	22.7	24.2	24.3	27.9	23.7	28.8	38.4
Physical Sciences	2.3	6.5	5.6	4.0	8.7	17.5	20.7	18.7	14.4	9.6	10.7	17.6
Psychology	1.3	2.1	1.9	1.1	3.3	7.2	11.2	5.0	4.6	2.8	*	5.1
Public Affairs	0.6	2.6	2.2	0.2	2.1	5.0	6.7	4.0	*	*	*	*
Social Sciences	1.3	2.5	2.4	1.7	8.5	19.3	17.1	13.8	8.8	7.8	11.2	14.0
Interdisciplinary Studies	0.6	1.7	1.8	0.7	4.2	15.3	12.2	11.0	12.1	4.7	18.0	8.7
Total	2.1	4.5	4.4	3.0	7.8	12.7	13.9	11.8	16.7	11.7	15.1	20.0

* Numbers too small to permit percentage comparisons.

Source: California Postsecondary Education Commission.

DISPLAY 27 Percent Change in the Number of Bachelor's Degrees Awarded in 21 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1985-86



* Numbers too small to permit percentage comparison for foreign students.

Source: California Postsecondary Education Commission.

student participation. In 1976-77, foreign students accounted for 10.5 percent of the bachelor's degrees awarded in engineering. By 1981-82, this percentage had increased to 16.0 percent -- nearly one out of every six bachelor's degrees awarded in engineering. Since then, the number has decreased to only 6.8 percent -- an amount less than that ten years ago

Master's degrees

Foreign students earning master's degrees exhibited similar choices as resident students, in that they increased their concentration in computer science and mathematics, as did U.S. residents. However, like their baccalaureate counterparts, they decreased their number and percentage in engineering -- despite the fact that engineering was the discipline in which they recorded their highest percentage of master's degrees -- 31.2 percent, or nearly one out of every three, in 1985-86, compared to only 28.0 percent in 1976-77 (Display 26).

As did their baccalaureate counterparts, foreign students at the master's level generally increased their percentage of degrees over the ten years. In a number of disciplines (including area studies, communications, computer sciences, the physical sciences, and interdisciplinary studies) the number of master's degrees awarded to foreign students more than doubled (Displays 28 and 29, pages 52 and 53). Only two disciplines awarded fewer degrees -- agriculture and foreign languages. Engineering posted a moderate increase in the number of master's degrees awarded to foreign students -- 20.2 percent, but in comparison, master's degrees awarded to U.S. residents increased by only 3.4 percent.

Doctorates

University of California doctorates awarded to foreign students increased by over 25 percent during the 1976-77 to 1985-86 period. In considering discipline percentage changes, however, the "smallness" of the numbers is significant, and, therefore, the magnitude of the trends could be misinterpreted. Nonetheless, foreign students increased their degree production in the numerically largest disciplines, with the greatest increases noted in education, the physical sciences, and mathematics (Displays 30 and 31, pages 53 and 54).

In addition, 45.3 percent of all of the Ph.D.s in engineering awarded by the University in 1985-86 went to foreign students -- a number comparable to the 43.2 percent awarded in 1976-77. More surprising, however, is the fact that foreign students received half of the University's 28 doctorates in business and management -- a considerable increase from their 27.7 percent in 1976-77.

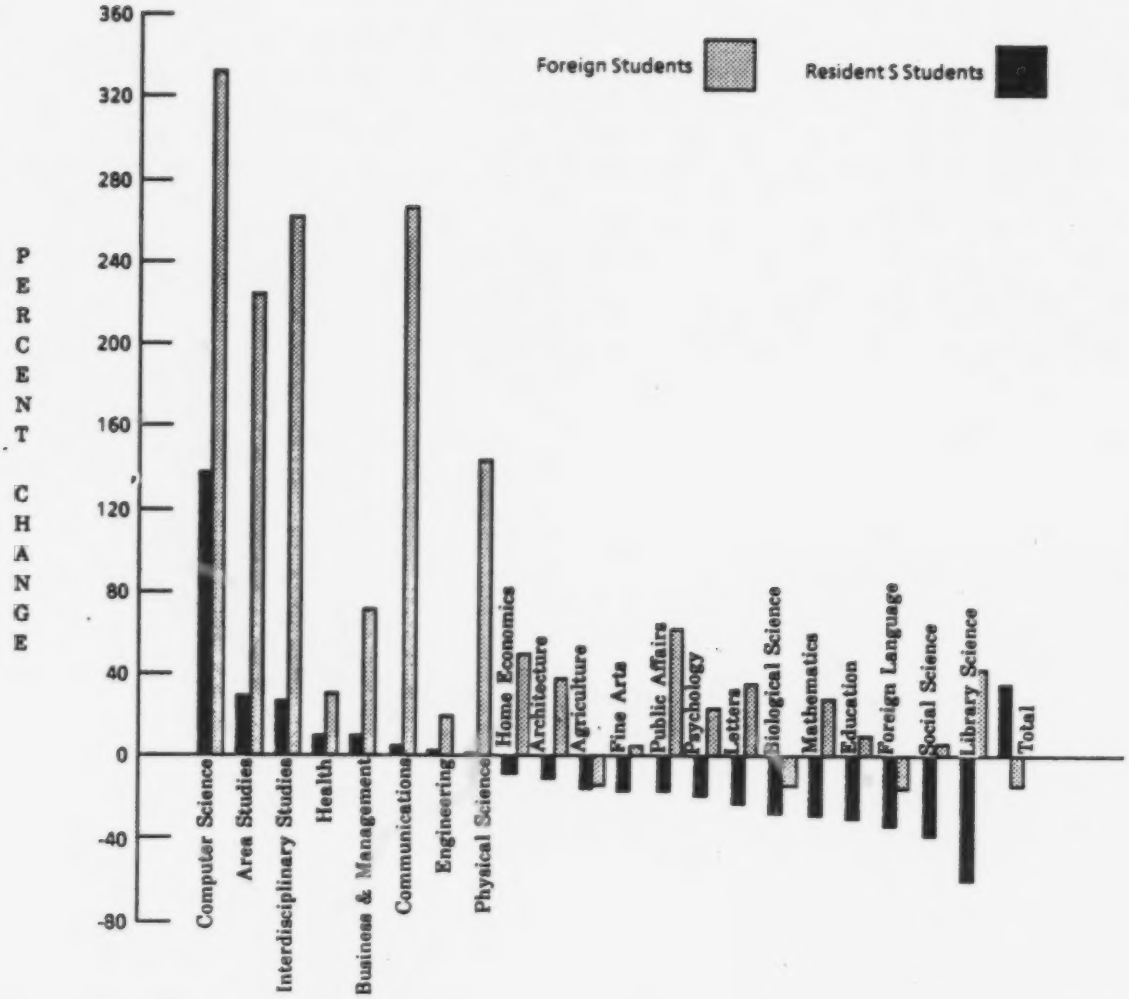
DISPLAY 28 ***Percentage Change in Master's Degrees Awarded in 21 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1985-86***

	1976-77 to 1980-81		1981-82 to 1985-86		1976-77 to 1985-86	
Discipline	Foreign	Resident	Foreign	Resident	Foreign	Resident
Agriculture	-7.2	+0.5	-43.2	-16.3	-14.5	-15.0
Architecture	+102.7	+12.1	-37.8	-19.3	+37.8	-11.7
Area Studies	*	-1.8	-40.9	+18.3	+225.0	+29.1
Biological Science	-3.5	-10.8	-3.9	-15.1	-13.8	-26.9
Business and Management	+61.0	+5.5	-7.6	-3.7	+72.7	+10.4
Communications	*	-17.7	*	*	+266.7	+5.2
Computer Science	+247.6	+54.1	+5.8	+26.5	+333.3	+138.5
Education	+137.5	-17.4	-51.5	-17.5	+10.2	-29.3
Engineering	+25.1	-14.0	-19.6	+11.6	+20.2	+3.4
Fine Arts	+140.5	-12.6	-43.5	-9.0	+5.4	-16.1
Foreign Language	+29.6	-24.0	-23.3	-15.7	-14.8	-33.2
Health	-13.9	+20.4	+19.0	+3.4	+30.6	+10.8
Home Economics	*	+10.3	-18.2	-24.3	+50.0	-8.7
Letters	+76.9	-23.1	-24.3	+0.7	+35.9	-22.4
Library Science	*	-60.3	-54.6	+6.7	+42.9	-60.3
Mathematics	-10.5	-45.3	+6.5	+5.6	+28.9	-28.3
Physical Sciences	+140.0	+8.3	-21.5	-10.9	+143.3	+1.3
Psychology	+109.5	-7.1	-60.6	-5.7	+23.8	-18.8
Public Affairs	+157.1	+3.4	-50.0	-13.4	+61.9	-16.4
Social Sciences	+75.3	-31.8	-29.8	-9.8	+6.5	-38.1
Interdisciplinary Studies	*	-12.5	-25.6	-16.1	+262.5	+27.2
Total	+54.6	-10.0	-23.2	-7.2	+35.5	-14.3

* Numbers too small to permit percentage comparisons.

Source: California Postsecondary Education Commission.

DISPLAY 29 Percent Change in the Number of Master's Degrees Awarded in 21 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1985-86



Source: California Postsecondary Education Commission.

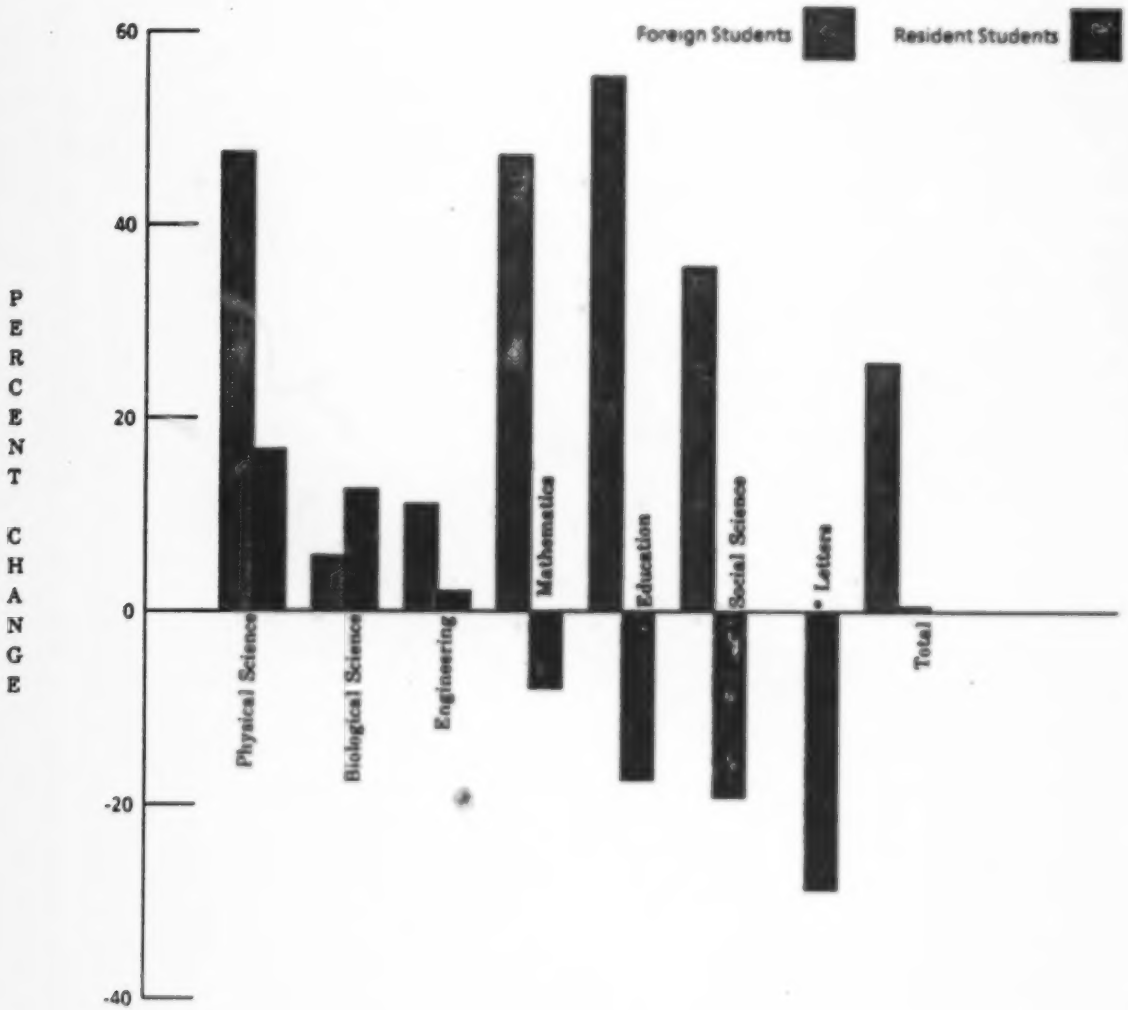
DISPLAY 30 Percentage Change in Doctorates Awarded in 21 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1980-81, 1981-82 to 1985-86, and 1976-77 to 1985-86

Discipline	1976-77 to 1980-81		1981-82 to 1985-86		1976-77 to 1985-86	
	Foreign	Resident	Foreign	Resident	Foreign	Resident
Agriculture	*	*	*	*	*	*
Architecture	*	*	*	*	*	*
Area Studies	*	*	*	*	*	*
Biological Science	-61.5	+27.8	+41.0	-1.1	+5.8	+12.8
Business and Management	*	*	+75.0	-30.0	*	*
Communications	*	*	*	*	*	*
Computer Science	*	*	+20.0	+61.1	*	*
Education	+122.2	-6.6	-12.5	-14.4	+55.6	-17.5
Engineering	-22.2	+2.5	+8.1	+7.4	+11.1	+2.1
Fine Arts	*	*	*	*	*	*
Foreign Language	*	*	*	*	*	*
Health	*	*	*	*	*	*
Home Economics	*	*	*	*	*	*
Letters	*	-5.5	*	*	*	-28.9
Library Science	*	*	*	*	*	*
Mathematics	-5.3	+18.4	+47.4	-4.3	+47.4	-8.2
Physical Sciences	-23.5	+12.9	+72.2	-3.0	+47.6	+16.9
Psychology	*	*	*	*	*	*
Public Affairs	*	*	*	*	*	*
Social Sciences	-17.9	-6.2	+52.0	+2.6	+35.7	-19.3
Interdisciplinary Studies	*	*	*	*	*	*
Total	-25.9	+13.0	+37.0	-1.6	+25.3	+0.6

* Numbers too small to permit percentage comparisons.

Source: California Postsecondary Education Commission.

DISPLAY 31 ***Percent Change in the Number of Doctorates Awarded in 7 Fields of Study to Foreign Students and U.S. Residents by the University of California and the California State University, 1976-77 to 1985-86***



* Numbers too small to permit percentage comparison for foreign students.

Source: California Postsecondary Education Commission.

Appendix A — *Bachelor's and Master's Degrees*

DISPLAY 32 Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81 61

DISPLAY 33 Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86 61

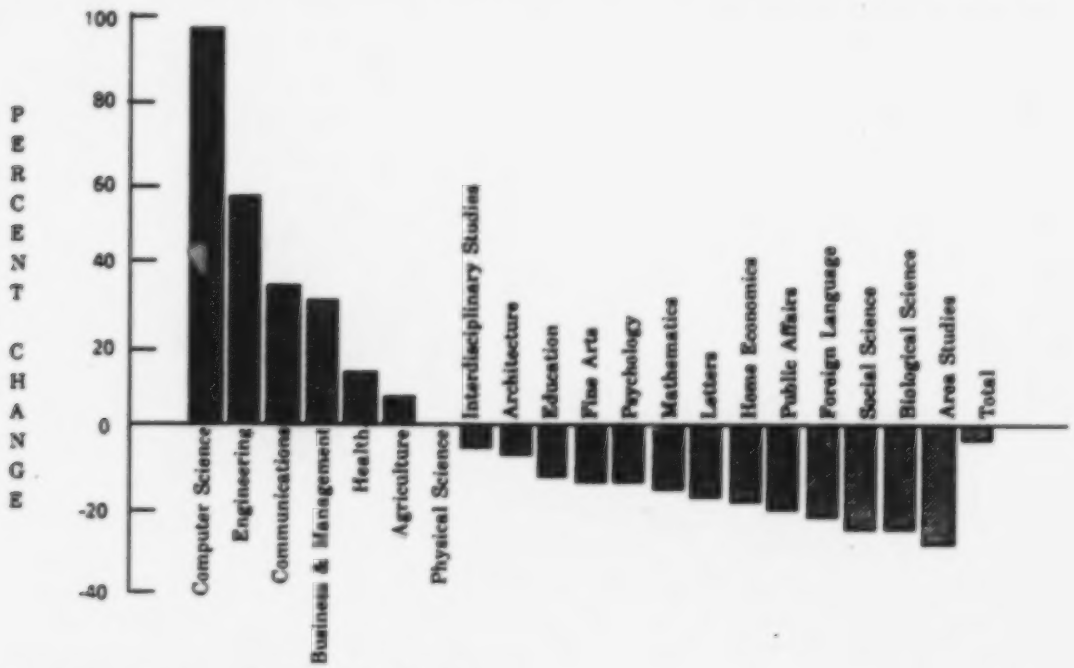
DISPLAY 34 Percentage Change in Master's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81 62

DISPLAY 35 Percentage Change in Master's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86 62

DISPLAY 36 Bachelor's and Master's Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1976-77 and 1980-81 63

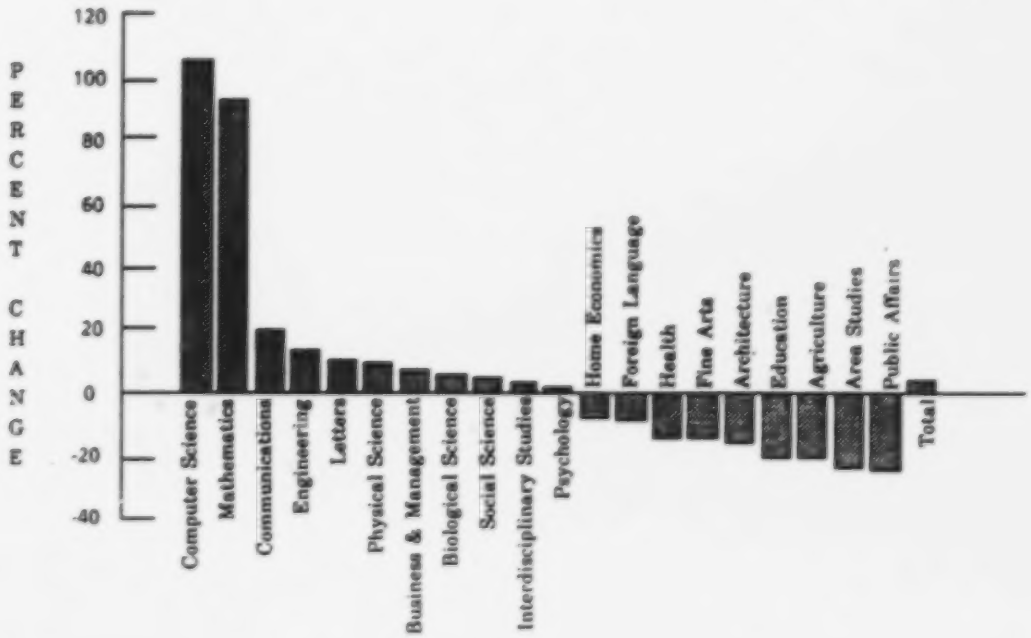
DISPLAY 37 Bachelor's and Master's Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1981-82 and 1985-86 68

DISPLAY 32 *Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81*



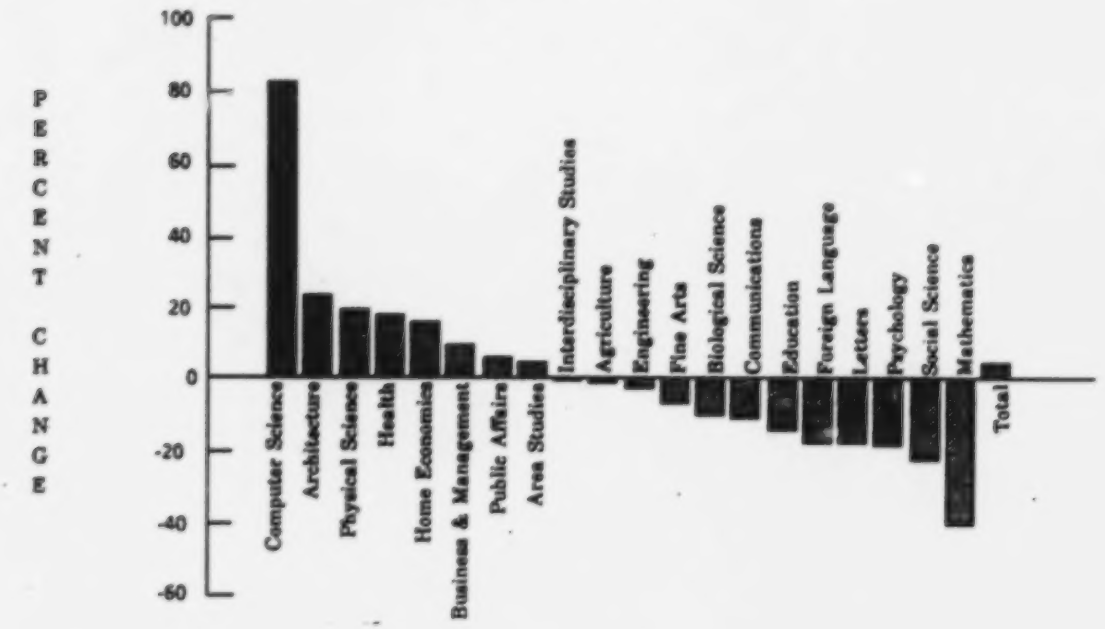
Source: California Postsecondary Education Commission.

DISPLAY 33 *Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86*



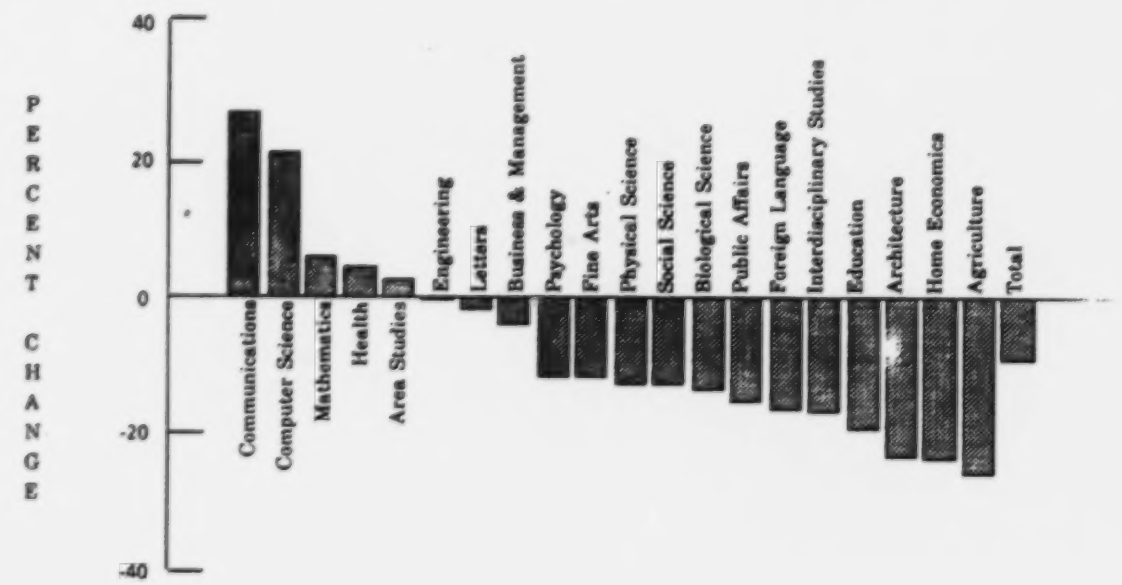
Source: California Postsecondary Education Commission.

DISPLAY 34 Percentage Change in Master's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81



Source: California Postsecondary Education Commission.

DISPLAY 35 Percentage Change in Master's Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86



Source: California Postsecondary Education Commission.

DISPLAY 36 Bachelor's and Master's Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1976-77 and 1980-81

Bachelors Degrees	Agriculture			Architecture			Area Studies			Biological Sciences			Business		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76 77	80-81	% chg.
Male															
UC	408	298	-27.0	222	158	-28.8	36	33	-8.3	1,949	1,224	-37.2	373	566	5.7
CSU	980	925	-5.6	342	260	-24.0	56	31	-44.6	1,352	759	-43.9	5,797	6,001	3.5
TOTAL	1,388	1,223	-11.9	564	418	-25.9	92	64	-30.4	3,301	1,983	-39.9	6,170	6,567	6.4
Female															
UC	241	280	16.2	92	116	26.1	82	46	-43.9	1,074	935	-12.9	168	349	107.7
CSU	267	444	66.3	63	95	50.8	79	45	-43.0	765	727	-5.0	1,963	3,899	98.6
TOTAL	508	724	42.5	155	211	36.1	161	91	-43.5	1,839	1,662	-9.6	2,131	4,248	99.3
Minority															
UC	60	104	73.3	61	71	16.4	24	12	-50.0	514	503	-2.1	116	154	32.8
CSU	83	100	20.5	59	58	-1.7	19	17	-10.5	272	252	-7.4	1,186	1,865	57.3
TOTAL	143	204	42.7	120	129	7.5	43	29	-32.6	786	755	-3.9	1,302	2,019	55.1
Total Selected Minority	63	92	47.6	55	57	3.6	20	21	5.0	237	263	11.0	628	943	50.2
Non-Resident Alien															
UC	9	9	0.0	3	9	200.0	3	2	-33.3	60	34	-43.3	12	14	16.7
CSU	21	101	381.0	18	16	-11.1	1	4	300.0	47	81	72.3	265	590	122.6
TOTAL	30	107	256.7	21	25	19.0	4	6	50.0	107	115	7.5	277	604	118.1
Total Bachelors															
UC	649	659	1.5	314	309	-1.6	118	103	-12.7	3,023	2,346	-22.4	541	924	70.6
CSU	1,247	1,369	9.8	405	355	-12.3	135	76	-43.7	2,108	1,486	-29.5	7,760	9,900	27.6
TOTAL	1,896	2,028	7.0	719	664	-7.6	253	179	-29.2	5,131	3,832	-25.3	8,301	10,823	30.4

Masters Degrees	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	148	81	-45.3	169	140	-17.2	14	16	14.3	216	131	-39.4	635	527	17.0
CSU	99	91	-8.1	64	65	1.6	11	9	-18.2	169	163	-3.6	810	826	2.0
TOTAL	247	172	-30.4	233	205	-12.0	25	25	0.0	385	294	3.2	1,445	1,353	-6.4
Female															
UC	28	34	21.4	49	100	104.1	25	22	-12.0	105	88	-16.2	239	293	22.6
CSU	14	24	71.4	11	17	54.5	9	8	-11.1	69	67	-2.9	185	367	98.4
TOTAL	42	58	38.1	60	117	95.0	34	30	-11.8	174	155	-10.9	424	660	55.7
Minority															
UC	6	11	83.3	41	38	-7.3	2	2	0.0	32	24	-25.0	110	83	24.5
CSU	9	2	-77.8	3	7	133.3	3	4	33.3	9	11	22.2	102	62	-39.2
TOTAL	15	13	-13.3	44	45	2.3	5	6	20.0	41	35	-14.6	212	145	31.6
Total Selected Minority	5	7	40.0	25	23	-8.0	4	2	-50.0	17	6	-64.7	102	39	61.8
Non-Resident Alien															
UC	59	21	-64.4	34	44	29.4	4	6	50.0	55	18	-67.3	100	90	-10.0
CSU	24	56	133.3	3	31	933.3	0	2	--	3	38	1,166.7	54	158	192.6
TOTAL	83	77	-7.2	37	75	102.7	4	8	300.0	58	56	-3.4	154	248	61.0
Total Masters															
UC	176	169	-4.0	218	280	28.4	39	45	15.4	321	273	-15.0	874	864	-1.1
CSU	113	115	1.8	75	82	9.3	20	17	-15.0	238	230	-3.4	995	1,193	19.9
TOTAL	289	284	-1.7	293	362	23.5	59	62	5.1	559	503	-10.0	1,869	2,057	10.1

DISPLAY 36, continued

Bachelors Degrees	Communications			Computer Science			Education			Engineering			Fine Arts		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	105	112	6.7	143	201	40.6	122	45	-63.1	1,135	1,606	41.5	527	329	-37.6
CSU	947	860	-9.2	189	400	111.6	1,764	1,378	-21.9	1,758	2,661	51.4	1,129	914	-19.0
TOTAL	952	972	2.1	332	601	81.0	1,886	1,423	-24.5	2,893	4,267	47.5	1,656	1,243	-24.9
Female															
UC	85	216	154.1	48	105	118.8	211	83	-60.7	106	227	114.2	987	810	-17.9
CSU	532	889	67.1	47	117	148.9	1,393	1,533	10.1	48	215	347.9	1,531	1,444	-5.7
TOTAL	617	1,105	79.1	95	222	133.7	1,604	1,616	1.0	154	442	187.0	2,518	2,254	-10.5
Minority															
UC	21	36	71.4	25	86	244.0	56	13	-76.8	247	500	102.4	170	125	-26.5
CSU	149	224	50.3	29	89	206.9	470	513	9.1	244	494	102.5	279	337	20.8
TOTAL	170	260	52.9	54	175	224.1	526	526	0.0	491	994	102.4	449	462	2.9
Total Selected Minority	124	184	48.4	16	41	156.3	345	346	0.1	144	247	71.5	264	261	-1.1
Non-Resident Alien															
UC	0	3	--	2	14	600.0	2	0	-100.0	103	170	65.0	14	9	-35.7
CSU	21	66	214.3	17	52	205.9	45	133	195.6	217	578	166.4	22	108	390.9
TOTAL	21	69	228.6	19	66	247.4	47	133	183.0	320	748	133.8	36	117	225.0
Total Bachelors															
UC	190	348	83.2	191	325	70.2	333	136	-59.2	1,241	1,900	53.1	1,514	1,248	-17.6
CSU	1,379	1,749	26.8	236	517	119.1	3,157	2,911	-7.8	1,806	2,876	59.2	2,660	2,358	-11.4
TOTAL	1,569	2,097	33.7	427	842	97.2	3,490	3,047	-12.7	3,047	4,776	56.7	4,174	3,606	-13.6

Masters Degrees	Communications			Computer Science			Education			Engineering			Fine Arts		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	6	8	33.3	70	106	51.4	111	70	-36.9	844	704	-16.6	169	152	-10.1
CSU	54	33	-38.9	45	102	126.7	1,299	829	-36.2	414	403	-2.7	255	209	-18.0
TOTAL	60	41	-31.7	115	208	80.9	1,410	899	-36.2	1,258	1,107	-12.0	424	361	-14.9
Female															
UC	15	9	-40.0	16	20	25.0	220	131	-40.5	52	81	55.8	190	160	-15.8
CSU	27	33	22.2	12	26	116.7	2,263	2,421	7.0	14	25	78.6	241	244	1.2
TOTAL	42	42	0.0	28	46	64.3	2,483	2,552	2.8	66	106	60.6	431	404	-6.3
Minority															
UC	1	5	400.0	8	7	-12.5	34	18	-47.1	97	105	8.2	30	29	-3.3
CSU	2	2	0.0	4	19	375.0	524	520	-1.0	70	74	5.7	41	30	-26.8
TOTAL	3	7	133.3	12	36	200.0	558	538	-3.6	167	179	7.2	71	59	-16.9
Total Selected Minority	2	1	-50.0	3	3	0.0	405	391	-3.5	42	34	-19.0	43	36	-16.3
Non-Resident Alien															
UC	2	0	-100.0	19	33	73.7	20	28	40.0	290	275	-5.2	25	32	28.0
CSU	4	12	200.0	2	40	1,900.0	68	181	166.2	81	189	133.3	12	57	375.0
TOTAL	6	12	100.0	21	73	247.6	88	209	137.5	371	464	25.1	37	89	140.5
Total Masters															
UC	21	25	19.0	86	133	54.7	331	220	-33.5	896	856	-4.5	359	351	-2.2
CSU	102	91	-10.8	57	128	124.6	3,707	3,250	-12.3	428	428	0.0	496	453	-8.7
TOTAL	123	116	-5.7	143	261	82.5	4,038	3,470	-14.1	1,324	1,284	-3.0	855	804	-6.0

DISPLAY 36, continued

Bachelors Degrees	Foreign Languages			Health			Home Economics			Letters			Library Science		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	117	85	-27.4	154	179	16.2	20	1	-95.0	559	451	-19.3	none	none	
CSU	188	126	-33.0	366	336	-8.2	18	20	11.1	876	622	-29.0			
TOTAL	305	211	-30.8	520	515	-1.0	38	21	-44.7	1,435	1,073	-25.2			
Female															
UC	418	317	-24.2	255	356	39.6	223	69	-69.1	899	698	-22.4			
CSU	444	351	-20.9	1,876	2,130	13.5	1,092	985	-9.8	1,266	1,086	-14.2			
TOTAL	862	668	-22.5	2,131	2,486	16.7	1,315	1,054	-19.8	2,165	1,784	-17.6			
Minority															
UC	89	100	12.4	100	133	33.0	53	10	-81.1	128	121	-5.5			
CSU	154	141	-8.4	394	444	12.7	137	163	19.0	151	167	10.6			
TOTAL	243	241	-0.8	494	577	16.8	190	173	-8.9	279	288	3.2			
Total Selected Minority	196	192	-2.0	249	296	18.9	69	86	24.6	193	194	0.5			
Non-Resident Alien															
UC	25	9	-64.0	0	2	--	4	0	-100.0	16	14	-12.5			
CSU	26	28	7.7	24	53	120.8	16	30	87.5	27	62	129.6			
TOTAL	51	37	-27.5	24	55	129.2	20	30	50.0	43	76	76.7			
Total Bachelors															
UC	535	426	-20.4	409	540	32.0	243	90	-63.0	1,458	1,258	-13.7			
CSU	632	477	-24.5	2,242	2,466	10.0	1,110	1,005	9.5	2,142	1,708	-20.3			
TOTAL	1,167	903	-22.6	2,651	3,006	13.4	1,353	1,095	19.1	3,600	2,966	-17.6			

Masters Degrees	Foreign Languages			Health			Home Economics			Letters			Library Science		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg
Male															
UC	65	40	-38.5	222	181	-18.5	9	1	-88.9	118	75	-36.4	50	32	-36 0
CSU	24	29	20.8	138	154	11.6	5	7	40.0	215	156	-27.4	50	8	84.0
TOTAL	89	69	-22.5	360	335	-6.9	14	8	-42.9	333	231	-30.6	100	40	60 0
Female															
UC	102	74	-27.5	495	506	2.2	18	6	-66.7	126	123	-2.4	155	90	41 9
CSU	53	53	0.0	378	575	52.1	100	135	35.0	321	267	-16.8	195	52	-73 3
TOTAL	155	127	-18.1	873	1,081	23.8	118	141	19.5	447	390	-12.8	350	142	-59 4
Minority															
UC	18	21	16.7	101	112	10.9	3	1	-66.7	9	15	66.7	35	13	62.9
CSU	17	12	-29.4	56	70	25.0	14	23	64.3	26	33	26.9	18	2	-88 9
TOTAL	35	33	-5.7	157	182	15.9	17	24	41.2	35	48	37.1	53	15	71 7
Total Selected Minority	24	24	0.0	96	101	5.2	8	11	37.5	22	27	22.7			
Non-Resident Alien															
UC	22	20	-9.1	62	38	-38.7	3	0	-100.0	14	26	85.7	4	7	75.0
CSU	5	15	200.0	10	24	140.0	3	14	366.7	25	43	72.0	3	5	66.7
TOTAL	27	35	29.6	72	62	-13.9	6	14	133.3	39	69	76.9	7	12	71.4
Total Masters															
UC	167	118	-29.3	717	731	2.0	27	11	-59.3	244	216	-11.5	205	128	37 6
CSU	77	82	6.5	516	729	41.3	105	142	35.2	536	423	21 1	245	60	75 5
TOTAL	244	200	-18.0	1,233	1,460	18.4	132	153	15.9	780	639	18 1	450	188	58 2

DISPLAY 36, continued

Bachelors Degrees	Mathematics			Physical Science			Psychology			Public Affairs			Social Science		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	284	218	-23.2	533	457	-14.3	723	480	-33.6	41	20	-51.2	2,865	2,173	-24.2
CSU	303	243	-19.8	603	583	-3.3	1,152	771	-33.1	1,847	1,119	-39.4	3,502	2,003	-42.8
TOTAL	587	461	-21.5	1,136	1,040	-8.5	1,875	1,251	-33.3	1,888	1,139	-39.7	6,357	4,176	-34.3
Female															
UC	146	138	-5.5	128	148	15.6	1,084	973	-10.2	127	95	-25.2	2,235	2,006	-10.2
CSU	178	153	-14.0	137	184	34.3	1,519	1,504	-1.0	1,518	1,549	2.0	2,449	1,781	-27.3
TOTAL	324	291	-10.2	265	332	25.3	2,603	2,477	-4.8	1,645	1,644	-0.1	4,684	3,787	-19.2
Minority															
UC	81	87	7.4	61	118	93.4	247	277	12.1	50	43	-14.0	761	662	-13.0
CSU	74	69	-6.8	67	72	7.5	349	396	13.5	600	627	4.5	1,016	720	-29.1
TOTAL	155	156	0.6	128	190	48.4	596	673	12.9	650	670	3.1	1,777	1,382	-22.2
Total Selected Minority	49	36	-26.5	51	70	37.3	396	428	8.1	507	506	-0.2	1,298	982	-24.4
Non-Resident Alien															
UC	13	19	46.2	14	13	-7.1	19	13	-31.6	0	1	----	69	58	-15.9
CSU	20	41	105.0	19	79	315.8	39	68	74.4	22	72	227.3	81	150	85.2
TOTAL	33	60	81.8	33	92	178.8	58	81	39.7	22	73	231.8	150	208	38.7
Total Bachelors															
UC	430	370	-14.0	661	642	-2.9	1,807	1,571	-13.1	168	130	22 6	5,100	4,506	-11.6
CSU	481	396	-17.7	740	767	3.6	2,671	2,275	-14.8	3,365	2,668	-20.7	5,951	3,784	-36.4
TOTAL	911	766	-15.9	1,401	1,409	0.6	4,478	3,846	-14.1	3,533	2,798	-20.8	11,051	8,254	-25.3

Masters Degrees	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	130	70	-46.2	202	204	1.0	39	31	-20.5	76	37	-51.3	317	258	-18.6
CSU	49	32	-34.7	87	115	32.2	278	209	-24.8	444	373	-16.0	389	248	-36.2
TOTAL	179	102	-43.0	289	319	10.4	317	240	-24.3	520	410	-21.2	706	506	-28.3
Female															
UC	40	29	-27.5	40	47	17.5	39	29	-25.6	136	138	1.5	161	139	-13.7
CSU	31	9	-71.0	15	25	66.7	271	237	-12.5	348	521	49.7	225	175	-22.2
TOTAL	71	38	-46.5	55	72	30.9	310	266	-14.2	484	659	36.2	386	314	-18.7
Minority															
UC	17	11	-35.3	13	16	23.1	11	10	-9.1	60	50	-16.7	35	36	2.9
CSU	6	5	-16.7	8	11	37.5	52	57	9.6	122	170	39.3	63	40	-36.5
TOTAL	23	16	-30.4	21	27	28.6	63	67	6.3	182	220	20.9	98	76	-22.4
Total Selected Minority	9	6	-33.3	5	8	60.0	42	51	21.4	132	166	25.8	72	57	-20.8
Non-Resident Alien															
UC	36	23	-36.1	22	40	81.8	10	8	-20.0	3	3	0.0	60	64	6.7
CSU	2	11	450.0	8	32	300.0	11	44	300.0	18	51	183.3	33	99	200.0
TOTAL	38	34	-10.5	30	72	140.0	21	52	147.6	21	54	157.1	93	163	75.3
Total Masters															
UC	170	109	-35.9	242	272	12.4	78	61	-21.8	212	176	-17.0	478	421	-11 9
CSU	80	41	-48.8	102	140	37.3	549	446	-18.8	792	894	12.9	614	423	-31 1
TOTAL	250	150	-40.0	344	412	19.8	627	507	19.1	1,004	1,070	6.6	1,092	844	-22 7

DISPLAY 36, continued

Bachelors Degrees	Interdisciplinary Studies 76-77	80-81	% chg.	TOTAL 76-77	80-81	% chg.
Male						
UC	973	824	-15.3	11,289	9,460	-16.2
CSU	696	510	-26.7	23,765	20,522	-13.6
TOTAL	1,669	1,334	-20.1	35,054	29,982	-14.5
Female						
UC	980	945	-3.6	9,589	8,913	-7.0
CSU	2,368	2,340	-1.2	19,526	21,471	10.0
TOTAL	3,348	3,285	-1.9	29,115	30,384	4.4
Minority						
UC	231	299	29.4	3,095	3,455	11.6
CSU	406	474	16.7	6,138	7,222	17.7
TOTAL	637	773	21.4	9,233	10,677	15.6
Total Selected Minority	431	550	27.6	5,335	5,796	8.6
Non-Resident Alien						
UC	15	23	53.3	383	413	7.8
CSU	16	60	275.0	964	2,372	146.1
TOTAL	31	83	167.7	1,347	2,785	106.8
Total Bachelors						
UC	1,953	1,902	-2.6	20,878	19,733	-5.5
CSU	3,064	2,850	-7.0	43,291	41,993	-3.0
TOTAL	5,017	4,752	-5.3	64,169	61,726	-3.8

Masters Degrees	76-77	80-81	% chg.	76-77	80-81	% chg.
Male						
UC	33	34	3.0	3,668	2,913	-20.6
CSU	73	57	-21.9	4,972	4,118	-17.2
TOTAL	106	91	14.2	8,640	7,031	-18.6
Female						
UC	40	42	5.0	2,295	2,167	-5.6
CSU	46	46	0.0	4,972	5,427	9.2
TOTAL	86	86	0.0	7,267	7,594	4.5
Minority						
UC	6	8	33.3	669	617	-7.8
CSU	5	6	20.0	1,154	1,250	8.3
TOTAL	11	14	27.3	1,823	1,867	2.4
Total Selected Minority	8	9	12.5	1,066	1,002	-6.0
Non-Resident Alien						
UC	1	11	1,000.0	863	803	-7.0
CSU	7	18	157.1	376	1,112	195.7
TOTAL	8	29	262.5	1,239	1,915	54.6
Total Masters						
UC	73	87	19.2	5,963	5,569	-6.6
CSU	119	103	-13.4	9,944	9,545	-4.0
TOTAL	192	190	-1.0	15,907	15,114	5.0

Source: California Postsecondary Education Commission.

DISPLAY 37 Bachelor's and Master's Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1981-82 and 1985-86

Bachelors Degrees	Agriculture and Agricultural Production			Agricultural Sciences			Renewable Natural Resources			Architecture and Environmental Design			Area and Ethnic Studies		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	121	144	19.01	135	91	-32.59	173	88	-49.13	181	148	-18.23	56	40	-28.57
CSU	212	206	-2.83	465	338	-27.31	242	161	-33.47	299	254	-15.05	62	43	-30.65
TOTAL	333	350	5.11	600	429	-28.50	415	249	-40.00	480	402	-16.25	118	83	-29.66
Female															
UC	66	126	90.91	120	94	-21.67	153	98	-35.95	116	77	-33.62	75	89	18.67
CSU	69	85	23.19	332	228	-31.33	99	78	-21.21	86	94	9.30	155	92	-40.65
TOTAL	135	211	56.30	452	322	-28.76	252	176	-30.16	202	171	-15.35	230	181	-21.30
Minority															
UC	21	42	100.00	33	27	-18.18	37	27	-27.03	93	80	-13.98	48	43	-10.42
CSU	21	27	28.57	74	59	-20.27	18	14	-22.22	74	69	-6.76	122	64	-47.54
TOTAL	42	69	64.29	107	86	-19.63	55	41	-25.45	167	149	-10.78	170	107	-37.06
Total Selected Minority	18	30	66.67	56	51	-8.93	26	23	-11.54	69	56	-18.84	155	93	-40.00
Non-Resident Alien															
UC	2	5	150.00	10	5	-50.00	2	2	0.00	13	13	0.00	3	2	-33.33
CSU	10	7	30.00	54	17	-68.52	63	7	-88.89	17	2	-88.24	6	1	-83.33
TOTAL	12	12	0.00	64	22	-65.63	65	9	-86.15	30	15	-50.00	9	3	-66.67
Total Bachelors															
UC	187	270	44.39	255	185	-27.45	326	186	-42.94	297	225	-24.24	131	129	-1.53
CSU	281	291	3.56	797	566	-28.98	341	239	-29.91	385	348	-9.61	217	135	-37.79
TOTAL	468	561	19.87	1,052	751	-28.61	667	425	-36.28	682	573	-15.98	348	264	-24.14

Masters Degrees	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	22	18	-18.18	83	56	-32.53	23	14	-39.13	167	115	-31.14	27	29	7.41
CSU	0	2	--	94	48	-48.94	23	20	-13.04	61	47	-22.95	11	10	-9.09
TOTAL	22	20	-9.09	177	104	-41.24	46	34	-26.09	228	162	-28.95	38	39	2.63
Female															
UC	13	8	-38.46	45	47	4.44	6	8	33.33	102	89	-12.75	27	39	44
CSU	0	0	0.00	22	21	-4.55	3	4	33.33	32	26	-18.75	17	[illegible]	71
TOTAL	13	8	-38.46	67	68	1.49	9	12	33.33	134	115	-14.18	44	[illegible]	27
Minority															
UC	2	1	-50.00	15	4	-73.33	1	2	100.00	37	37	0.00	5	1	240.00
CSU	0	0	0.00	5	4	-20.00	0	1	--	6	14	133.33	6	8	33.33
TOTAL	2	1	-50.00	20	8	-60.00	1	3	200.00	43	51	18.60	11	25	127.27
Total Selected Minority	2	1	-50.00	11	3	-72.73	0	2	--	25	33	32.00	10	22	120.00
Non-Resident Alien															
UC	7	8	14.29	35	31	-11.43	9	6	-33.33	54	43	-20.37	14	12	-14.29
CSU	0	0	0.00	51	21	-58.82	23	5	-78.26	28	8	-71.43	8	1	-87.50
TOTAL	7	8	14.29	86	52	-39.53	32	11	-65.63	82	51	-37.80	22	13	-40.91
Total Masters															
UC	35	26	-25.71	128	103	-19.53	29	22	-24.14	269	204	-24.16	54	68	25.93
CSU	0	2	--	116	69	-40.52	26	24	-7.69	93	73	-21.51	28	16	-42.86
TOTAL	35	28	-20.00	244	172	-29.51	55	46	-16.36	362	277	-23.48	82	84	2.44

DISPLAY 37, continued

Bachelors Degrees	Business and Management			Communications			Computer and Information Sciences			Education			Engineering		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg	81 82	85-86	% chg.
Male															
UC	574	567	-1.22	132	113	-14.39	341	441	29.33	47	26	-44.68	1,668	1497	-10.25
CSU	6,527	6,006	-7.98	957	1,091	14.00	430	1,105	156.98	854	667	21.90	2,594	3192	23.05
TOTAL	7,101	6,573	-7.44	1,089	1,204	10.56	771	1,546	100.52	901	693	-23.09	4,262	4689	10.02
Female															
UC	334	473	41.62	295	288	-2.37	168	204	21.43	88	49	-44.32	300	334	11.33
CSU	4,656	5,850	25.64	1,084	1,450	33.76	200	589	194.50	1,393	1,160	-16.73	270	490	81.48
TOTAL	4,990	6,323	26.71	1,379	1,738	26.03	368	793	115.49	1,481	1,209	-18.37	570	824	44.56
Minority															
UC	154	206	33.77	41	47	14.63	136	174	27.94	9	9	0.00	552	686	24.28
CSU	2,149	2,806	30.57	270	417	54.44	139	606	335.97	397	338	-14.86	467	1050	124.84
TOTAL	2,303	3,012	30.79	311	464	49.20	275	780	183.64	406	347	-14.53	1,019	1736	70.36
Total Selected Minority	1,063	1,384	30.20	217	354	63.13	44	121	175.00	289	249	-13.84	220	356	61.82
Non-Resident Alien															
UC	15	22	46.67	0	1	--	27	49	81.48	0	1	--	161	92	-42.86
CSU	562	506	-9.96	69	26	-62.32	63	179	184.13	67	28	-58.21	670	309	-53.88
TOTAL	577	528	-8.49	69	27	-60.87	90	228	153.33	67	29	-56.72	831	401	-51.74
Total Bachelors															
UC	908	1,040	14.54	427	401	-6.09	509	645	26.72	135	75	-44.44	1,968	1831	6.96
CSU	11,183	11,856	6.02	2,041	2,541	24.50	630	1,694	168.89	2,247	1,827	18.69	2,864	3682	28.56
TOTAL	12,091	12,896	6.67	2,468	2,942	19.21	1,139	2,339	105.36	2,382	1,902	-20.15	4,832	5513	14.09

Masters Degrees	Business and Management			Communications			Computer and Information Sciences			Education			Engineering		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	610	560	-8.20	4	13	225.00	135	114	-15.56	77	81	5.19	896	770	-14.06
CSU	901	788	-12.54	38	34	-10.53	107	157	46.73	912	666	-26.97	414	487	17.63
TOTAL	1,511	1,348	-10.79	42	47	11.90	242	271	11.98	989	747	-24.47	1,310	1,257	-4.05
Female															
UC	326	315	-3.37	6	6	0.00	26	38	46.15	201	194	-3.48	110	123	11.82
CSU	417	497	19.18	49	70	42.86	48	73	52.08	2,395	1,947	-18.71	18	51	183.33
TOTAL	743	812	9.29	55	76	38.18	74	111	50.00	2,596	2,141	-17.53	128	174	35.94
Minority															
UC	131	132	0.76	0	1	0.00	16	26	62.50	30	34	13.33	122	149	22.13
CSU	206	176	-14.56	4	10	150.00	20	67	235.00	517	449	-13.15	80	157	96.25
TOTAL	337	308	-8.61	4	11	175.00	36	93	158.33	547	483	-11.70	202	306	51.49
Total Selected Minority	133	120	-9.77	4	6	50.00	3	3	0.00	414	368	-11.11	40	46	15.00
Non-Resident Alien															
UC	97	99	2.06	0	2	0.00	29	40	37.93	27	30	11.11	383	289	24.54
CSU	191	167	-12.57	9	20	122.22	57	51	-10.53	173	67	-61.27	172	157	8.72
TOTAL	288	266	-7.64	9	22	144.44	86	91	5.81	200	97	-51.50	555	446	19.64
Total Masters															
UC	936	875	-6.52	10	19	90.00	161	152	-5.59	278	275	-1.08	1,006	893	11 23
CSU	1,318	1,285	-2.50	87	104	19.54	155	230	48.39	3,307	2,613	-20.99	432	538	24.54
TOTAL	2,254	2,160	-4.17	97	123	26.80	316	382	20.89	3,585	2,888	-19.44	1,438	1,43	-0 49

DISPLAY 37, continued

Bachelors Degrees	Engineering and Engineering Related Activities			Foreign Languages			Allied Health			Health Science			Home Economics		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	0	0	0.00	86	107	24.42	8	5	-37.50	167	136	-18.56	11	6	-45.45
CSU	792	893	12.75	124	108	-12.90	76	27	-64.47	253	249	-1.58	17	23	35.29
TOTAL	792	893	12.75	210	215	2.38	84	32	-61.90	420	385	-8.33	28	29	3.57
Female															
UC	0	0	0.00	322	315	-2.17	48	38	-20.83	235	172	-26.81	200	161	-19.50
CSU	74	92	24.32	340	268	-21.18	235	173	-26.38	1,964	1,758	-10.49	900	844	-6.22
TOTAL	74	92	24.32	662	583	-11.93	283	211	-25.44	2,199	1,930	-12.23	1,100	1,005	-8.64
Minority															
UC	0	0	0.00	82	112	36.59	13	12	-7.69	100	96	-4.00	34	32	-5.88
CSU	151	239	58.28	137	98	-28.47	89	52	-41.57	381	464	21.78	136	144	5.88
TOTAL	151	239	58.28	219	210	-4.11	102	64	-37.25	481	560	16.42	170	176	3.53
Total Selected Minority	65	103	58.46	23	18	-21.74	33	33	0.00	226	258	14.16	72	94	30.56
Non-Resident Alien															
UC	0	0	0.00	12	10	-16.67	0	0	0.00	5	1	-80.00	2	1	-50.00
CSU	81	40	-50.62	21	7	-66.67	15	1	-93.33	22	20	-9.09	32	16	-50.00
TOTAL	81	40	-50.62	33	17	-48.48	15	1	-93.33	27	21	-22.22	34	17	-50.00
Total Bachelors															
UC	0	0	0.00	408	422	3.43	56	43	-23.21	402	308	-23.38	211	167	-20.85
CSU	866	985	13.74	464	376	-18.97	311	200	-35.69	2,217	2,007	-9.47	917	867	-5.45
TOTAL	866	985	13.74	872	798	-8.49	367	243	-33.79	2,619	2,315	-11.61	1,128	1,034	-8.33

Masters Degrees	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	0	0	0.00	43	39	-9.30	1	2	100.00	153	165	7.84	1	2	100.00
CSU	0	0	0.00	24	10	-58.33	39	15	-61.54	68	79	16.18	7	9	28.57
TOTAL	0	0	0.00	67	49	-26.87	40	17	-57.50	221	244	10.41	8	11	37.50
Female															
UC	0	0	0.00	70	76	8.57	7	10	42.86	485	560	15.46	8	7	-12.50
CSU	0	0	0.00	65	43	-33.85	98	64	-34.69	472	485	2.75	147	106	-27.89
TOTAL	0	0	0.00	135	119	-11.85	105	74	-29.52	957	1045	9.20	155	113	-27.10
Minority															
UC	0	0	0.00	8	12	50.00	1	3	200.00	110	106	-3.64	0	0	0.00
CSU	0	0	0.00	18	11	-38.89	18	12	-33.33	35	62	77.14	28	17	-39.29
TOTAL	0	0	0.00	26	23	-11.54	19	15	-21.05	145	168	15.86	28	17	-39.29
Total Selected Minority	0	0	0.00	23	18	-21.74	15	11	-26.67	89	100	12.36	17	8	-52.94
Non-Resident Alien															
UC	0	0	0.00	12	16	33.33	0	0	0.00	53	67	26.42	1	3	200.00
CSU	0	0	0.00	18	7	-61.11	5	1	-80.00	21	26	23.81	10	6	-40.00
TOTAL	0	0	0.00	30	23	-23.33	5	1	-80.00	74	93	25.68	11	9	-18.18
Total Masters															
UC	0	0	0.00	113	115	1.77	8	12	50.00	638	725	13.64	9	9	0.00
CSU	0	0	0.00	89	53	-40.45	137	79	-42.34	540	564	4.44	154	115	-25.32
TOTAL	0	0	0.00	202	168	-16.83	145	91	-37.24	1178	1289	9 42	163	124	-23.93

DISPLAY 37, continued

Bachelors Degrees	Law			Letters			Liberal and General Studies			Life Sciences			Mathematics		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	19	71	273.68	454	492	8.37	64	108	68.75	1,157	1,342	15.99	258	498	93.02
CSU	0	0	0.00	487	530	8.83	376	365	-2.93	782	587	-24.94	217	352	62.21
TOTAL	19	71	273.68	941	1,022	8.61	440	473	7.50	1,939	1,929	-0.52	475	850	78.95
Female															
UC	22	62	181.82	755	924	22.38	165	266	61.21	1,021	1,320	29.29	161	387	140.37
CSU	0	0	0.00	955	1,039	8.80	2,178	2,199	0.96	788	705	-10.53	137	254	85.40
TOTAL	22	62	181.82	1,710	1,963	14.80	2,343	2,465	5.21	1,809	2,025	11.94	298	641	115.10
Minority															
UC	6	33	450.00	139	202	45.32	34	59	73.53	485	776	60.00	113	300	165.49
CSU	0	0	0.00	159	174	9.43	478	471	-1.46	281	285	1.42	48	147	206.25
TOTAL	6	33	450.00	298	376	26.17	512	530	3.52	766	1,061	38.51	161	447	177.64
Total Selected Minority	4	19	375.00	199	220	10.55	427	417	-2.34	237	322	35.86	27	101	274.07
Non-Resident Alien															
UC	0	2	--	12	13	8.33	1	0	-100.00	31	58	87.10	37	63	70.27
CSU	0	0	0.00	48	17	-64.58	40	6	-85.00	61	29	-52.46	29	42	44.83
TOTAL	0	2	--	60	30	-50.00	41	6	-85.37	92	87	-5.43	66	105	59.09
Total Bachelors															
UC	41	133	224.39	1,209	1,416	17.12	229	374	63.32	2,178	2,662	22.22	419	885	111.22
CSU	0	0	0.00	1,442	1,569	8.81	2,554	2,564	0.39	1,570	1,292	-17.71	354	606	71.19
TOTAL	41	133	224.39	2,651	2,985	12.60	2,783	2,938	5.57	3,748	3,954	5.50	773	1,491	92.88

Masters Degrees	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	35	28	-20.00	69	69	0.00	0	0	0.00	138	124	-10.14	101	85	-15.84
CSU	0	0	0.00	129	140	8.53	21	6	-71.43	139	96	-30.94	40	55	37.50
TOTAL	35	28	-20.00	198	209	5.56	21	6	-71.43	277	220	-20.58	141	140	-0.71
Female															
UC	8	11	37.50	129	116	-10.08	0	0	0.00	126	114	-9.52	27	43	59.26
CSU	0	0	0.00	278	271	-2.52	7	10	42.86	80	82	2.50	22	18	-18.18
TOTAL	8	11	37.50	407	387	-4.91	7	10	42.86	206	196	-4.85	49	61	24.49
Minority															
UC	0	2	--	14	11	-21.43	0	0	0.00	17	29	70.59	11	15	36.36
CSU	0	0	0.00	33	34	3.03	2	3	50.00	25	18	-28.00	8	8	0.00
TOTAL	0	2	--	47	45	-4.26	2	3	50.00	42	47	11.90	19	23	21.05
Total Selected Minority	0	2	--	33	24	-27.27	1	3	200.00	15	19	26.67	6	10	66.67
Non-Resident Alien															
UC	32	31	-0.03	22	13	-40.91	0	0	0.00	23	39	69.57	34	35	2.94
CSU	0	0	0.00	41	37	-9.76	0	7	--	29	11	-62.07	12	14	16.67
TOTAL	32	31	-0.03	63	50	-20.63	0	7	--	52	50	-3.85	46	49	6.52
Total Masters															
UC	43	39	-9.30	198	185	-6.57	0	0	0.00	264	238	-9.85	128	128	0.00
CSU	0	0	0.00	407	411	0.98	28	16	-42.86	219	178	-18.72	62	73	17.74
TOTAL	43	39	-9.30	605	596	-1.49	28	16	-42.86	483	416	-13.87	190	201	5.79

DISPLAY 37, continued

Bachelors Degrees	Multi/Interdisciplinary Studies			Parks and Recreation			Philosophy & Religion			Theology			Social Sciences		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	790	815	3.16	0	0	0.00	98	104	6.12	0	0	0.00	2,347	2,669	13.72
CSU	148	129	-12.84	242	143	-40.91	119	86	-27.73	0	0	0.00	1,978	1,791	-9.45
TOTAL	938	944	0.64	242	143	-40.91	217	190	-12.44	0	0	0.00	4,325	4,460	3.12
Female															
UC	793	839	5.80	0	0	0.00	55	55	0.00	0	0	0.00	2,192	2,567	17.11
CSU	240	189	-21.25	413	269	-34.87	64	55	-14.06	0	0	0.00	1,720	1,570	-8.72
TOTAL	1,033	1,028	-0.48	413	269	-34.87	119	110	-7.56	0	0	0.00	3,912	4,137	5.75
Minority															
UC	231	327	41.56	0	0	0.00	14	20	42.86	0	0	0.00	697	1,025	47.06
CSU	43	72	67.44	85	44	-48.24	22	13	-40.91	0	0	0.00	638	598	-6.27
TOTAL	274	399	45.62	85	44	-48.24	36	33	-8.33	0	0	0.00	1,335	1,623	21.57
Total Selected Minority	145	202	39.31	64	39	-39.06	24	22	-8.33	0	0	0.00	897	982	9.48
Non-Resident Alien															
UC	26	22	-15.38	0	0	0.00	0	1	--	0	0	0.00	53	89	67.92
CSU	18	8	-55.56	7	0	-100.00	6	1	-83.33	0	0	0.00	145	58	-60.00
TOTAL	44	30	-31.82	7	0	-100.00	6	2	-66.67	0	0	0.00	198	147	-25.76
Total Bachelors															
UC	1,583	1,654	4.49	0	0	0.00	153	159	3.92	0	0	0.00	4,539	5,236	15.36
CSU	388	318	-18.04	655	412	-37.10	183	141	-22.95	0	0	0.00	3,698	3,361	-9.11
TOTAL	1,971	1,972	0.05	655	412	-37.10	336	300	-10.71	0	0	0.00	8,237	8,597	4.37

Masters Degrees	Multi/Interdisciplinary Studies			Parks and Recreation			Philosophy & Religion			Theology			Social Sciences		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	87	62	-28.74	8	2	-75.00	23	19	-17.39	0	0	0.00	284	255	-10.21
CSU	67	73	8.96	16	17	6.25	7	5	-28.57	0	0	0.00	205	169	-17.56
TOTAL	154	135	-12.34	24	19	-20.83	30	24	-20.00	0	0	0.00	489	424	-13.29
Female															
UC	55	46	-16.36	3	2	-33.33	5	5	0.00	0	0	0.00	196	182	-7.14
CSU	81	66	-18.52	27	21	-22.22	1	3	200.00	0	0	0.00	141	111	-21.28
TOTAL	136	112	-17.65	30	23	-23.33	6	8	33.33	0	0	0.00	337	293	-13.06
Minority															
UC	10	18	80.00	1	0	-100.00	0	0	0.00	0	0	0.00	47	50	6.38
CSU	11	12	9.09	3	1	-66.67	1	0	-100.00	0	0	0.00	27	38	40.74
TOTAL	21	30	42.86	4	1	-75.00	1	0	-100.00	0	0	0.00	74	88	18.92
Total Selected Minority	12	24	100.00	4	1	-75.00	0	0	0.00	0	0	0.00	48	56	16.67
Non-Resident Alien															
UC	26	14	-46.15	5	0	-100.00	5	2	-60.00	0	0	0.00	81	69	-14.81
CSU	13	8	-38.46	4	4	0.00	2	1	-50.00	0	0	0.00	60	30	-50.00
TOTAL	39	22	-43.59	9	4	-55.56	7	3	-57.14	0	0	0.00	141	99	-29.79
Total Masters															
UC	142	108	-23.94	11	4	-63.64	28	24	-14.29	0	0	0.00	480	437	-8.96
CSU	148	139	-6.08	43	38	-11.63	8	8	0.00	0	0	0.00	346	280	-19.08
TOTAL	290	247	-14.83	54	42	-22.22	36	32	-11.11	0	0	0.00	826	717	-13.20

DISPLAY 37, continued

Bachelors Degrees	Physical Sciences			Psychology			Precision Production			Protective Services			Public Affairs		
	81-82	85-86	% chg.	81-82	85-86	%chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	518	601	16.02	540	508	-5.93	0	0	0.00	0	0	0.00	24	17	-29.17
CSU	564	579	2.66	683	618	-9.52	36	30	-16.67	522	446	-14.56	245	192	-21.63
TOTAL	1,082	1,180	9.06	1,223	1,126	-7.93	36	30	-16.67	522	446	-14.56	269	209	-22.30
Female															
UC	180	208	15.56	1,048	1,196	14.12	0	0	0.00	0	0	0.00	88	44	-50.00
CSU	204	222	8.82	1,562	1,572	0.64	23	22	-4.35	316	325	2.85	686	486	-29.15
TOTAL	384	430	11.98	2,610	2,768	6.05	23	22	-4.35	316	325	2.85	774	530	-31.52
Minority															
UC	97	140	44.33	315	381	20.95	0	0	0.00	0	0	0.00	33	30	-9.09
CSU	83	102	22.89	388	366	-5.67	3	6	100.00	218	243	11.47	309	209	-32.36
TOTAL	180	242	34.44	703	747	6.26	3	6	100.00	218	243	11.47	342	239	-30.12
Total Selected Minority	62	88	41.94	453	459	1.32	2	1	-50.00	177	187	5.65	272	203	-25.37
Non-Resident Alien															
UC	20	28	40.00	13	18	38.46	0	0	0.00	0	0	0.00	1	0	-100.00
CSU	62	47	-24.19	59	24	-59.32	0	0	0.00	19	0	-100.00	29	3	-89.66
TOTAL	82	75	-8.54	72	42	-41.67	0	0	0.00	19	0	-100.00	30	3	-90.00
Total Bachelors															
UC	698	809	15.90	1,588	1,704	7.30	0	0	0.00	0	0	0.00	112	61	-45.54
CSU	768	801	4.30	2,245	2,190	-2.45	59	52	-11.86	838	771	-8.00	931	678	-27.18
TOTAL	1,466	1,610	9.82	3,833	3,894	1.59	59	52	-11.86	838	771	-8.00	1,043	739	-29.15

Masters Degrees	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	237	176	-25.74	26	25	-3.85	0	0	0.00	0	0	0.00	44	42	-4.55
CSU	140	108	-22.86	218	147	-32.57	0	0	0.00	25	15	-40.00	291	238	-18.21
TOTAL	377	284	-24.67	244	172	-29.51	0	0	0.00	25	15	-40.00	335	280	-16.42
Female															
UC	43	66	53.49	35	33	-5.71	0	0	0.00	0	0	0.00	137	108	-21.17
CSU	30	41	36.67	309	313	1.29	0	0	0.00	12	7	-41.67	454	404	-11.01
TOTAL	73	107	46.58	344	346	0.58	0	0	0.00	12	7	-41.67	591	512	-13.37
Minority															
UC	18	15	-16.67	9	12	33.33	0	0	0.00	0	0	0.00	50	44	-12.00
CSU	17	20	17.65	57	54	-5.26	0	0	0.00	3	7	133.33	149	132	-11.41
TOTAL	35	35	0.00	66	66	0.00	0	0	0.00	3	7	133.33	199	176	-11.56
Total Selected Minority	11	16	45.45	51	51	0.00	0	0	0.00	3	5	66.67	151	145	-3.97
Non-Resident Alien															
UC	64	52	-18.75	6	5	-16.67	0	0	0.00	0	0	0.00	5	7	40.00
CSU	29	21	-27.59	60	21	-65.00	0	0	0.00	4	1	-75.00	50	22	-56.00
TOTAL	93	73	-21.51	66	26	-60.61	0	0	0.00	4	1	-75.00	55	29	-47.27
Total Masters															
UC	280	242	-13.57	61	58	-4.92	0	0	0.00	0	0	0.00	181	150	-17.13
CSU	170	149	-12.35	527	460	-12.71	0	0	0.00	37	22	-40.54	745	642	-13.83
TOTAL	450	391	13.11	588	518	11.90	0	0	0.00	37	22	-40.54	926	792	-14.47

DISPLAY 37, continued

Bachelors Degrees	Visual and Performing Arts 81-82	Visual and Performing Arts 85-86	Visual and Performing Arts % chg.	Library Science 81-82	Library Science 85-86	Library Science % chg.	Total 81-82	Total 85-86	Total % chg.
Male									
UC	416	367	-11.78	0	0	0.00	10,393	11,002	53.97
CSU	873	734	-15.92	0	0	0.00	21,176	20,945	-1.09
TOTAL	1,289	1,101	-14.58	0	0	0.00	31,569	31,947	17.04
Female									
UC	825	714	-13.45	0	0	0.00	9,827	11,095	12.90
CSU	1,392	1,189	-14.58	0	0	0.00	22,535	23,347	3.60
TOTAL	2,217	1,903	-14.16	0	0	0.00	32,362	34,442	6.43
Minority									
UC	130	159	22.31	0	0	0.00	3,651	4,713	29.09
CSU	299	332	11.04	0	0	0.00	7,679	9,509	23.83
TOTAL	429	491	14.45	0	0	0.00	11,330	14,222	25.53
Total Selected Minority	248	268	8.06	0	0	0.00	5,990	6,914	15.43
Non-Resident Alien									
UC	22	20	-9.09	0	0	0.00	468	518	10.68
CSU	99	26	-73.74	0	0	0.00	2,374	1,428	-39.85
TOTAL	121	46	-61.98	0	0	0.00	2,842	1,946	-31.53
Total Bachelors									
UC	1,241	1,081	-12.89	0	0	0.00	20,229	22,109	9.29
CSU	2,265	1,923	-15.10	0	0	0.00	43,711	44,292	1.33
TOTAL	3,506	3,004	-14.32	0	0	0.00	63,940	66,401	3.85

Masters Degrees	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male									
UC	156	139	-10.90	22	31	40.91	3,471	3,072	-11.50
CSU	187	163	-12.83	11	12	9.09	4,195	3,616	-13.80
TOTAL	343	302	-11.95	33	43	30.30	7,666	6,688	-12.76
Female									
UC	210	177	-15.71	89	100	12.36	2,502	2,533	1.24
CSU	270	246	-8.89	65	43	-33.85	5,560	5,029	-9.55
TOTAL	480	423	-11.88	154	143	-7.14	8,062	7,562	-6.20
Minority									
UC	39	43	10.26	9	10	11.11	704	774	9.94
CSU	43	42	-2.33	3	10	233.33	1,325	1,367	3.17
TOTAL	82	85	3.66	12	20	66.67	2,029	2,141	5.52
Total Selected Minority	48	57	18.75	0	0	0.00	1,215	1,168	-3.87
Non-Resident Alien									
UC	28	22	-21.43	10	7	-30.00	1,062	946	-10.92
CSU	41	17	-58.54	12	3	-75.00	1,123	733	-34.73
TOTAL	69	39	-43.48	22	10	-54.55	2,185	1,679	-23.16
Total Masters									
UC	366	316	13.66	111	131	18.02	5,979	5,608	-6.21
CSU	457	409	10.50	76	55	-27.63	9,755	8,645	11.38
TOTAL	823	725	11.91	187	186	-.53	15,744	14,253	-9.41

Source: California Postsecondary Education Commission.

Appendix B — *Doctorates*

DISPLAY 38 Percentage Change in Doctoral Degrees Awarded in 17 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81 77

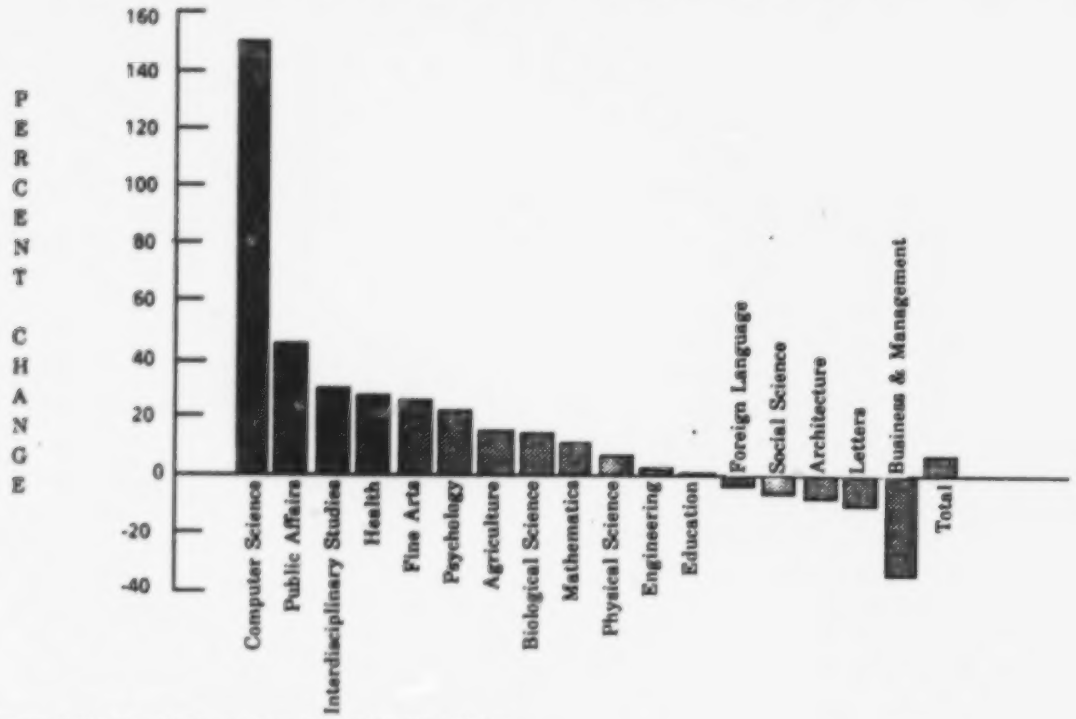
DISPLAY 39 Percentage Change in Doctoral Degrees Awarded in 17 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86 77

DISPLAY 40 Doctoral Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1976-77 and 1980-81 78

DISPLAY 41 Doctoral Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1981-82 to 1985-86 81

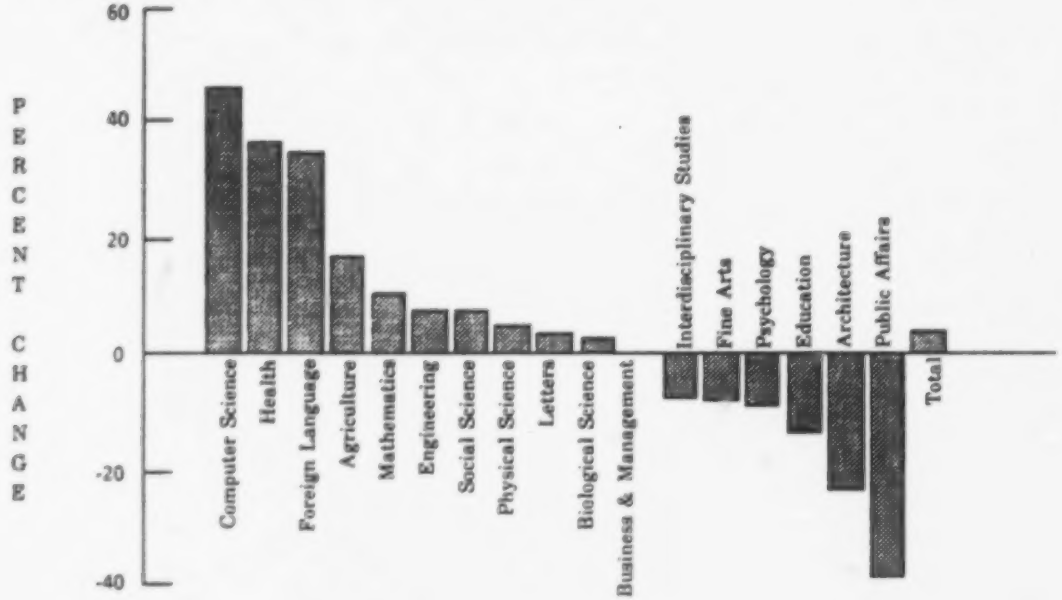
DISPLAY 42 Percentage Change in the Number of Doctoral Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1985-86 85

DISPLAY 38 *Percentage Change in Doctoral Degrees Awarded in 17 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81*



Source: California Postsecondary Education Commission.

DISPLAY 39 *Percentage Change in Doctoral Degrees Awarded in 17 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86*



Source: California Postsecondary Education Commission.

DISPLAY 40 Doctoral Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1976-77 and 1980-81

Doctoral Degrees	Agriculture			Architecture			Area Studies			Biological Sciences			Business		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	36	16	-55.6	11	2	-81.8	2	3	50.0	293	216	-26.3	43	15	-65.1
Female															
UC	2	4	100.0	1	1	0.0	1	1	0.0	79	90	13.9	4	6	50.0
Minority															
UC	1	1	0.0	2	1	-50.0	0	1	--	24	30	25.0	2	3	50.0
Total Selected Minority															
	1	1	0.0	2	0	-100.0	0	1	--	12	5	-58.3	2	2	0.0
Non-Resident Alien															
UC	13	10	-23.1	3	0	-100.0	0	0	--	52	20	-61.5	13	5	-61.5
Total Doctorates															
UC	38	44	15.8	12	11	-8.3	3	8	166.7	372	429	15.3	47	31	-34.0

Doctoral Degrees	Communications			Computer Science			Education			Engineering			Fine Arts		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	0	0	--	14	30	114.3	85	47	-44.7	248	201	-19.0	18	20	11.1
Female															
UC	0	0	--	2	1	50.0	61	71	16.4	2	9	350.0	21	8	-61.9
Minority															
UC	0	0	--	1	3	200.0	22	12	-45.5	7	30	328.6	1	1	0.0
Total Selected Minority															
	0	0	--	0	1	--	20	9	-55.0	5	7	40.0	1	1	0.0
Non-Resident Alien															
UC	0	0	--	6	14	133.3	9	20	122.2	108	84	-22.2	2	5	150.0
Total Doctorates															
UC	0	0	--	16	40	150.0	146	148	1.4	250	258	3.2	39	49	25.6

DISPLAY 40, continued

Doctoral Degrees	Foreign Languages			Health			Home Economics			Letters			Library Sciences		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	26	10	-61.5	26	14	-46.1	2	0	-100.0	93	48	-48.4	2	2	0.0
Female															
UC	28	20	-28.6	17	30	76.5	2	0	-100.0	52	40	-23.1	1	1	0.0
Minority															
UC	6	2	-66.7	5	5	0.0	1	0	-100.0	9	4	-55.6	0	0	--
Total Selected Minority	5	2	-60.0	3	3	0.0	0	0	--	9	4	-55.6	0	0	--
Non-Resident Alien															
UC	5	2	-60.0	4	1	-75.0	2	0	-100.0	17	8	-52.9	0	1	--
Total Doctorates															
UC	54	52	-3.7	43	55	27.9	4	0	-100.0	145	129	-11.0	3	4	33.3

Doctoral Degrees	Mathematics			Physical Science			Psychology			Public Affairs			Social Sciences		
	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.	76-77	80-81	% chg.
Male															
UC	58	58	0.0	267	222	-16.9	61	40	-34.4	6	1	-83.3	254	134	-47.2
Female															
UC	10	6	-40.0	24	41	70.8	26	41	57.7	7	7	0.0	64	39	-39.1
Minority															
UC	3	8	166.7	17	13	-23.5	3	8	166.7	2	2	0.0	17	21	23.5
Total Selected Minority	3	3	0.0	11	3	-72.7	3	6	100.0	2	2	0.0	13	15	15.4
Non-Resident Alien															
UC	19	18	-5.3	42	30	-28.6	4	3	-25.0	0	0	--	28	23	-17.9
Total Doctorates															
UC	68	76	11.8	291	311	6.9	87	107	23.0	13	19	46.2	318	295	-7.2

DISPLAY 40, continued

Doctoral Degrees	Interdisciplinary Studies			TOTAL		
	76-77	80-81	% chg.	76-77	80-81	% chg.
Male						
UC	23	14	-39.1	1,569	1,093	-30.3
Female						
UC	10	15	50.0	414	431	4.1
Minority						
UC	2	1	-50.0	133	146	9.8
Total Selected Minority	2	0	-100.0	94	64	-31.9
Non-Resident Alien						
UC	4	2	-50.0	332	246	25.9
Total Doctorates						
UC	33	43	30.3	1,983	2,111	6.5

Source: California Postsecondary Education Commission.

DISPLAY 41 Doctoral Degrees Awarded in 21 Fields of Study at the University of California and the California State University, by Sex, Minority Group Members, and Non-Resident Aliens, 1981-82 to 1985-86

Doctoral Degrees	Agriculture and Agricultural Production			Agricultural Sciences			Renewable Natural Resources			Architecture and Environmental Design			Area and Ethnic Studies		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	8	12	50.00	17	19	11.76	5	6	20.00	13	12	-7.69	3	9	200.00
Female															
UC	3	0	-100.00	2	4	100.00	0	0	0.00	8	4	-50.00	5	9	80.00
Minority															
UC	1	1	0.00	2	0	-100.00	0	1	0.00	1	1	0.00	3	2	-33.33
Total Selected Minority	0	0	0.00	2	1	-50.00	0	1	--	1	0	-100.00	2	0	-100.00
Non-Resident Alien															
UC	2	6	200.00	3	8	166.67	0	2	--	5	4	-20.00	0	3	0.00
Total Doctorates															
UC	11	12	9.09	23	23	21.05	5	6	20.00	21	16	-23.81	8	18	125.00

Doctoral Degrees	Business and Management			Communications			Computer and Information Sciences			Education			Engineering		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	23	20	-13.04	0	0	0.00	24	34	41.67	77	45	-41.56	233	246	5.58
Female															
UC	5	8	60.00	0	0	0.00	4	7	75.00	68	82	7.35	13	19	46.15
Minority															
UC	5	2	-60.00	0	0	0.00	0	4	--	23	23	0.00	25	33	32.00
Total Selected Minority	2	2	0.00	0	0	0.00	0	1	--	19	20	5.26	3	3	0.00
Non-Resident Alien															
UC	8	14	75.00	0	0	0.00	10	12	20.00	16	9	-43.75	111	120	8.11
Total Doctorates															
UC	28	28	0.00	0	0	0.00	28	41	46.43	145	118	-18.62	246	265	7.72

DISPLAY 41, continued

Doctoral Degrees	Engineering and Engineering Related Activities			Foreign Languages			Allied Health			Health Sciences			Home Economics		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	0	0	0.00	12	25	108.33	2	5	150.00	25	33	32.00	0	0	0.00
Female															
UC	0	0	0.00	30	32	6.67	4	4	0.00	31	43	38.71	0	0	0.00
Minority															
UC	0	0	0.00	7	8	14.29	0	2	--	6	10	66.67	0	0	0.00
Total Selected Minority	0	0	0.00	6	7	16.67	0	1	--	3	6	100.00	0	0	0.00
Non-Resident Alien															
UC	0	0	0.00	5	9	80.00	0	0	0.00	2	10	*	0	0	0.00
Total Doctorates															
UC	0	0	0.00	42	57	35.71	6	9	50.00	56	76	35.71	0	0	0.00

Doctoral Degrees	Law			Letters			Liberal and General Studies			Life Sciences			Mathematics		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	1	0	*	39	32	-17.95	1	2	100.00	283	261	-7.77	58	63	8.62
Female															
UC	0	0	0.00	45	55	22.22	0	0	0.00	120	154	28.33	8	10	25.00
Minority													6	5	-16.67
UC	0	0	0.00	2	9	*	1	0	-100.00	44	36	-18.18			
Total Selected Minority	0	0	0.00	2	6	*	1	0	-100.00	16	14	-12.50	2	1	-50.00
Non-Resident Alien															
UC	1	0	*	3	14	*	0	0	0.00	39	55	41.03	19	28	47.37
Total Doctorates															
UC	1	1	0.00	84	87	3.57	1	2	100.00	403	415	2.98	66	73	10.61

* Numbers are too small to be significant.

DISPLAY 41, continued

Doctoral Degrees	Multi/Inter-disciplinary Studies			Parks & Recreation			Philosophy and Religion			Theology			Social Sciences		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	32	21	-34.38	0	0	0.00	17	17	0.00	0	0	0.00	179	159	-11.17
Female															
UC	17	23	35.29	0	0	0.00	3	4	33.33	0	0	0.00	74	113	52.70
Minority															
UC	5	4	-20.00	0	0	0.00	1	0	-100.00	0	0	0.00	14	28	100.00
Total Selected Minority	3	4	33.33	0	0	0.00	0	0	0.00	0	0	0.00	8	17	112.50
Non-Resident Alien															
UC	9	4	-55.56	0	0	0.00	1	3	*	0	0	0.00	25	38	52.00
Total Doctorates															
UC	49	44	-10.20	0	0	0.00	20	21	5.00	0	0	0.00	253	272	7.51

Doctoral Degrees	Physical Sciences			Psychology			Precision Production			Protective Services			Public Affairs		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male															
UC	279	293	5.02	44	35	-20.45	0	0	0.00	0	0	0.00	6	1	-83.33
Female															
UC	55	58	5.45	43	44	2.33	0	0	0.00	0	0	0.00	12	10	-16.67
Minority															
UC	24	33	37.50	11	14	27.27	0	0	0.00	0	0	0.00	4	3	-25.00
Total Selected Minority	4	7	75.00	8	11	37.50	0	0	0.00	0	0	0.00	1	1	0.00
Non-Resident Alien															
UC	35	62	77.14	0	4	--	0	0	0.00	0	0	0.00	1	1	0.00
Total Doctorates															
UC	334	351	5.09	87	79	-9.20	0	0	0.00	0	0	0.00	18	11	-38.89

DISPLAY 41, continued

Doctoral Degrees	Visual and Performing Arts			Library Science			Total		
	81-82	85-86	% chg.	81-82	85-86	% chg.	81-82	85-86	% chg.
Male UC	15	20	33.33	3	3	0.00	1,404	1,375	-2.07
Female UC	20	12	-40.00	2	2	0.00	575	686	19.30
Minority UC	1	1	0.00	0	0	0.00	187	202	8.02
Total Selected Minority	1	1	0.00	0	0	0.00	85	84	-1.18
Non-Resident Alien UC	2	4	100.00	3	0	-100.00	300	411	37.00
Total Doctorates UC	35	32	-8.57	5	5	0.00	1,983	2,065	4.14

Source: California Postsecondary Education Commission.

DISPLAY 42 *Percentage Change in the Number of Doctoral Degrees Awarded in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1985-86*

Discipline	Doctorates* 1976-77 through 1980-81 Total	1981-82 through 1985-86 Total	1976-77 through 1985-86 Total
Agriculture	+15.7	+17.1	+7.9
Architecture	-8.3	-23.8	+33.3
Area Studies	**	**	**
Biological Science	+15.3	3.0	+11.8
Business and Management	-34.0	0.0	-40.4
Communications	--	--	--
Computer Science	+150.0	+46.4	+156.3
Education	+1.4	-14.2	-13.0
Engineering	+3.2	+7.7	+6.0
Fine Arts	+25.6	-8.6	-17.9
Foreign Languages	-3.7	+35.7	+5.6
Health	+27.9	+37.5	+97.7
Home Economics	--	--	--
Letters	-11.0	+3.8	-25.5
Mathematics	+11.8	+10.6	+7.4
Physical Science	+6.9	+5.1	+21.3
Psychology	+23.0	-9.2	-9.2
Public Affairs	+46.2	-38.9	-15.3
Social Science	-7.2	+7.5	-14.5
Interdisciplinary Studies	+30.3	-8.0	+39.4
TOTAL	+6.5	+4.4	+4.7

* Percentage changes in the number of Ph.D.s awarded to men and women are not provided because data from the University of California for 1980-81 are inaccurate, precluding percentage computations.

** Numbers too small to permit percentage computations.

Source: California Postsecondary Education Commission.

Appendix C — *Men's and Women's Degrees*

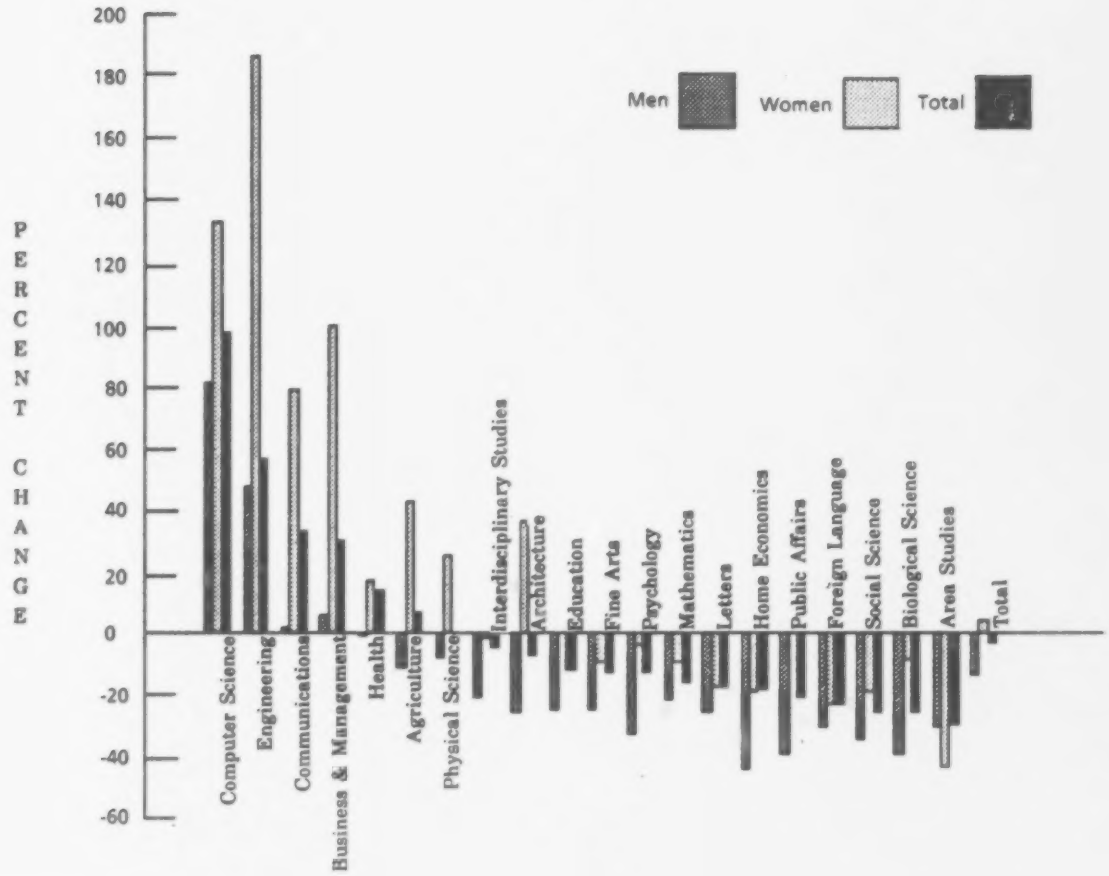
DISPLAY 43 Percentage Change in Bachelor's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81 89

DISPLAY 44 Percentage Change in Bachelor's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86 90

DISPLAY 45 Percentage Change in Master's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81 91

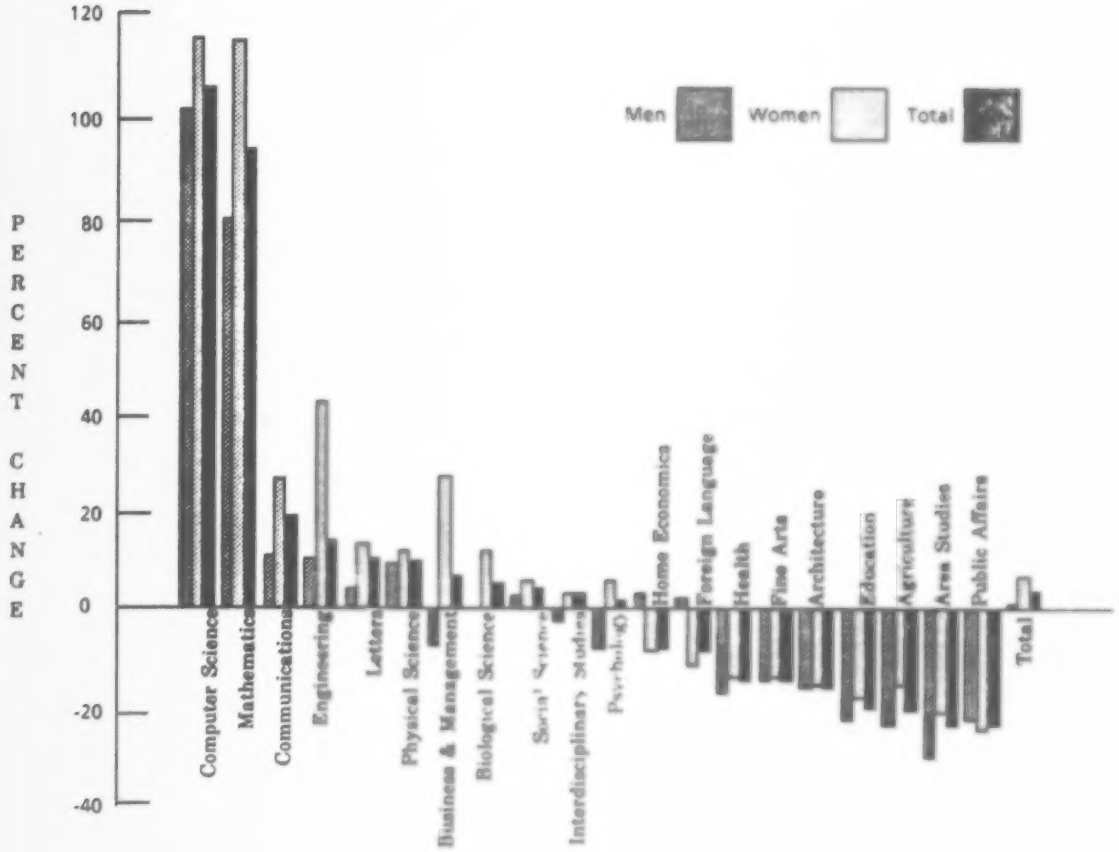
DISPLAY 46 Percentage Change in Master's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86 92

DISPLAY 43 Percentage Change in Bachelor's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81



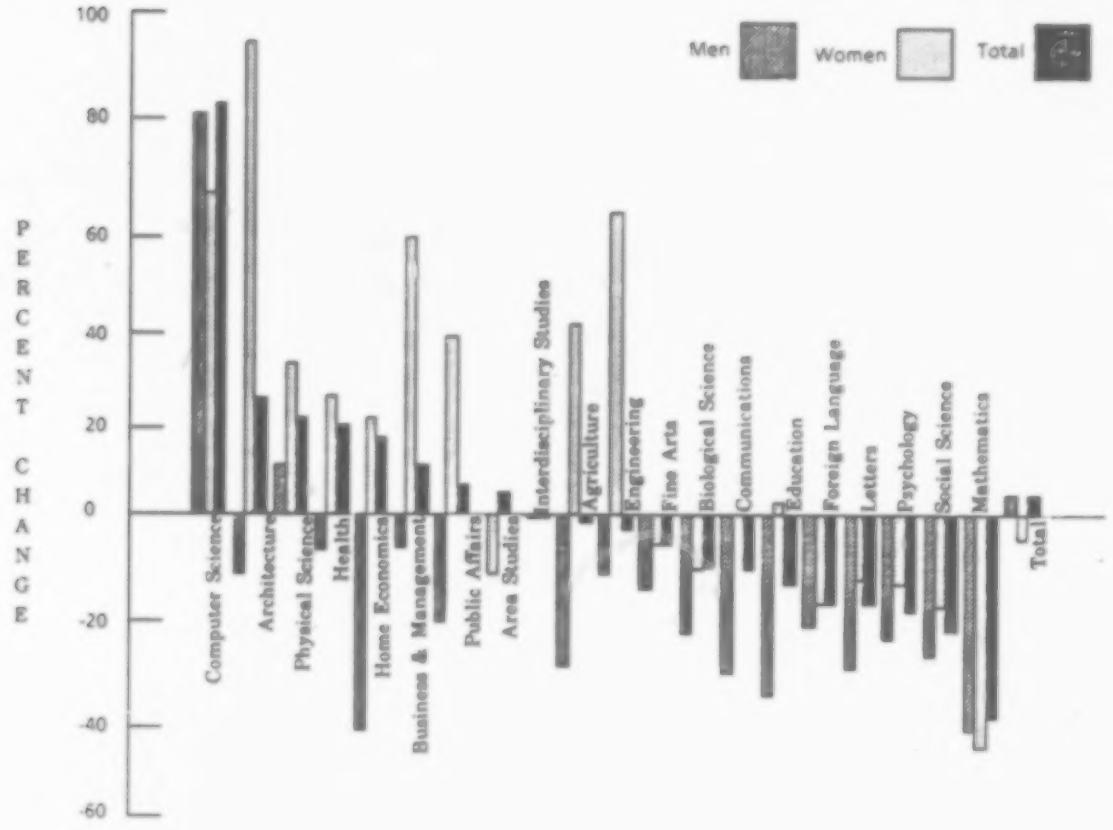
Source: California Postsecondary Education Commission.

DISPLAY 44 *Percentage Change in Bachelor's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86*



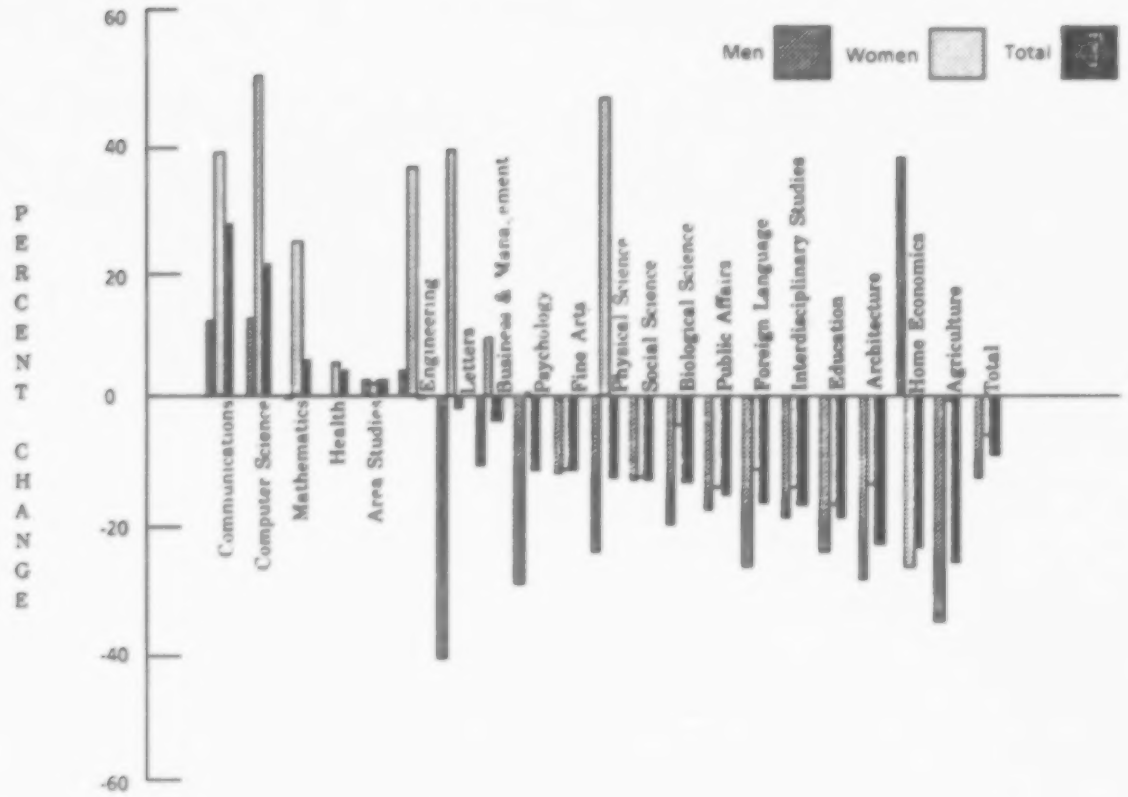
Source: California Postsecondary Education Commission.

DISPLAY 45 *Percentage Change in Master's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1976-77 to 1980-81*



Source: California Postsecondary Education Commission.

DISPLAY 46 *Percentage Change in Master's Degrees Awarded to Men, Women, and All Students in 20 Fields of Study by the University of California and the California State University, 1981-82 to 1985-86*



Source: California Postsecondary Education Commission.

Appendix D

Problems Attendant to Reporting Student Ethnicity

OF all of the information developed, collected, and reported by a campus in the course of an academic year, student ethnicity data undoubtedly present the most difficult challenges. Problems in collecting student ethnicity fall into five basic areas:

1. **Errors inherent in the self-reporting process**

   By law, student ethnicity must be self-reported; that is, students must voluntarily indicate the ethnic group with which they identify. While both federal and State law give administrators limited authority to intervene in the ethnicity declaration process, campus officials are, for the most part, precluded from influencing students' choice of their ethnic category.

2. **Errors induced by failure to report**

   Although the federal government exhorts educational institutions to report the ethnicity of their students, campus officials have few mechanisms by which to campus officials to force recalcitrant students to declare their ethnicity. Many students, through intent or neglect, take advantage of this condition and fail to declare their ethnicity when the opportunity is afforded them.

3. **Inability to verify the accuracy of the information collected**

   While self-reporting has clear and obvious benefits in terms of ensuring the confidentiality of personal information, it impedes an institution's ability to verify the accuracy or appropriateness of such information. In general, student declarations of ethnicity are private matters maintained in confidential files. As such,ethnicity declarations are rarely subject to review to ensure their accuracy.

4. **Changes in reporting categories**

   Reporting categories have been modified by the federal government a number of times over the past few years and some student ethnicity designations submitted in prior years and not recollected in the interim are no longer valid. Further, some of the changes introduced by the federal government have proven difficult to interpret by both administrators and students -- a condition further complicating the problems involved in the collection of student ethnicity data.

5. **Administrative error**

   Finally, many institutions solicit student ethnicity declarations as part of their first-time admission or first day of registration procedures. From both the students' and the institution's standpoint such efforts could probably not come at a more untimely moment. At this time, many students and administrators are concerned with ensuring that students have, enrolled in the proper classes, paid the appropriate fees, received proper student financial assistance, and familiarized themselves with the local campus geography. Amidst such obvious turmoil, administrative procedures often fail, and student ethnicity declarations are either unsolicited or lost.

   Nonetheless, while it is clear that collecting and reporting accurate student ethnicity is a difficult task, most campuses do a good job of informing students of the need to know their ethnicity and accurately recording their responses.

Appendix E — *Minority and Majority Degrees*

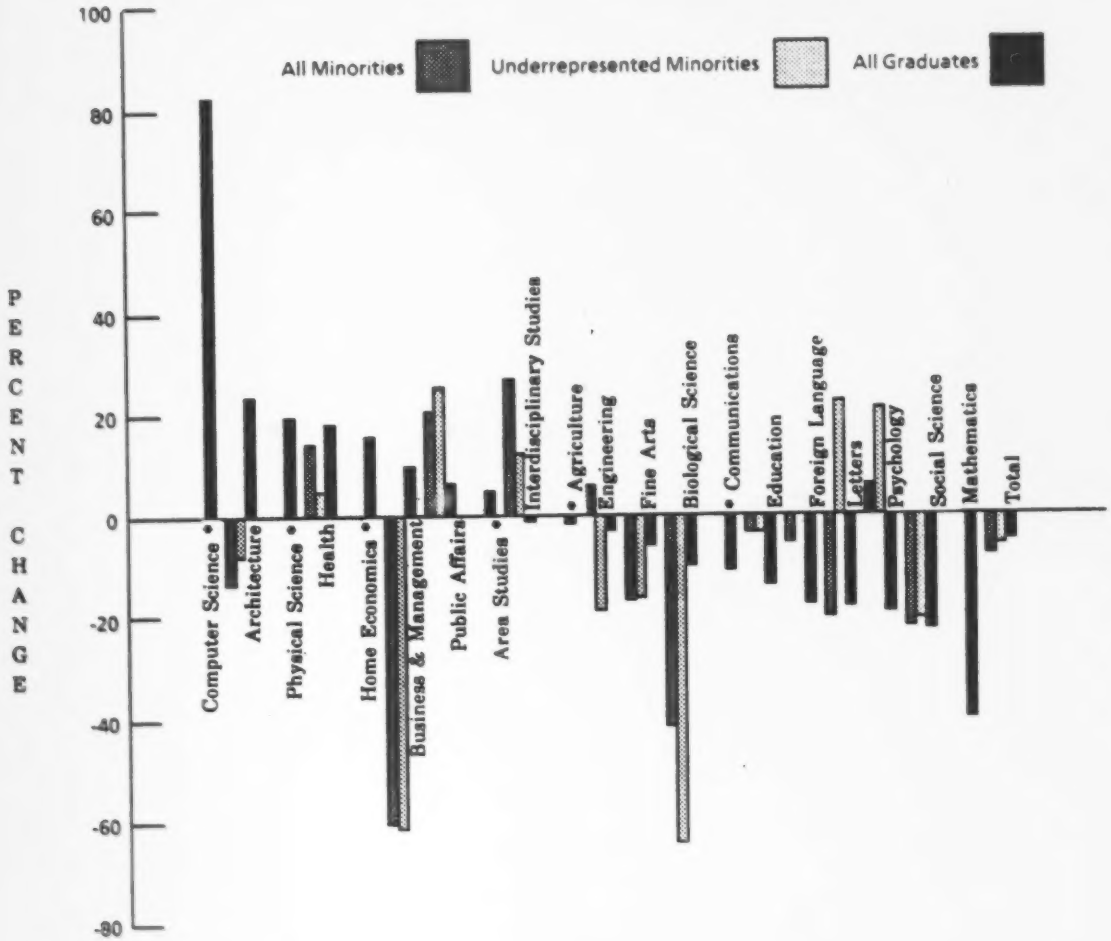
DISPLAY 47 Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1980-81 97

DISPLAY 48 Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1980-81 to 1985-86 98

DISPLAY 49 Percentage Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1980-81 99

DISPLAY 50 Percentage Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1980-81 to 1985-86 100

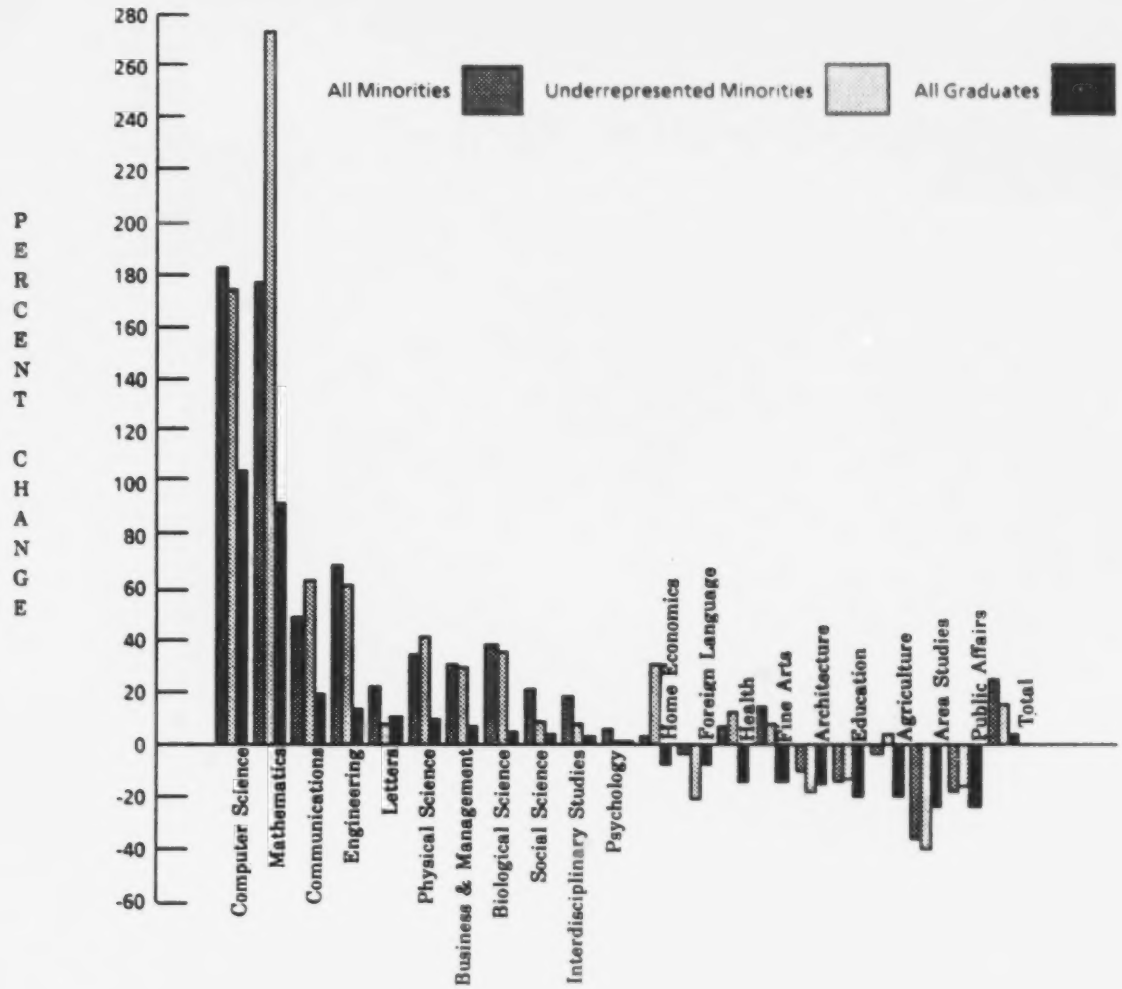
DISPLAY 47 *Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1980-81*



• Numbers too small to permit percentage comparison for all minorities or underrepresented minorities.

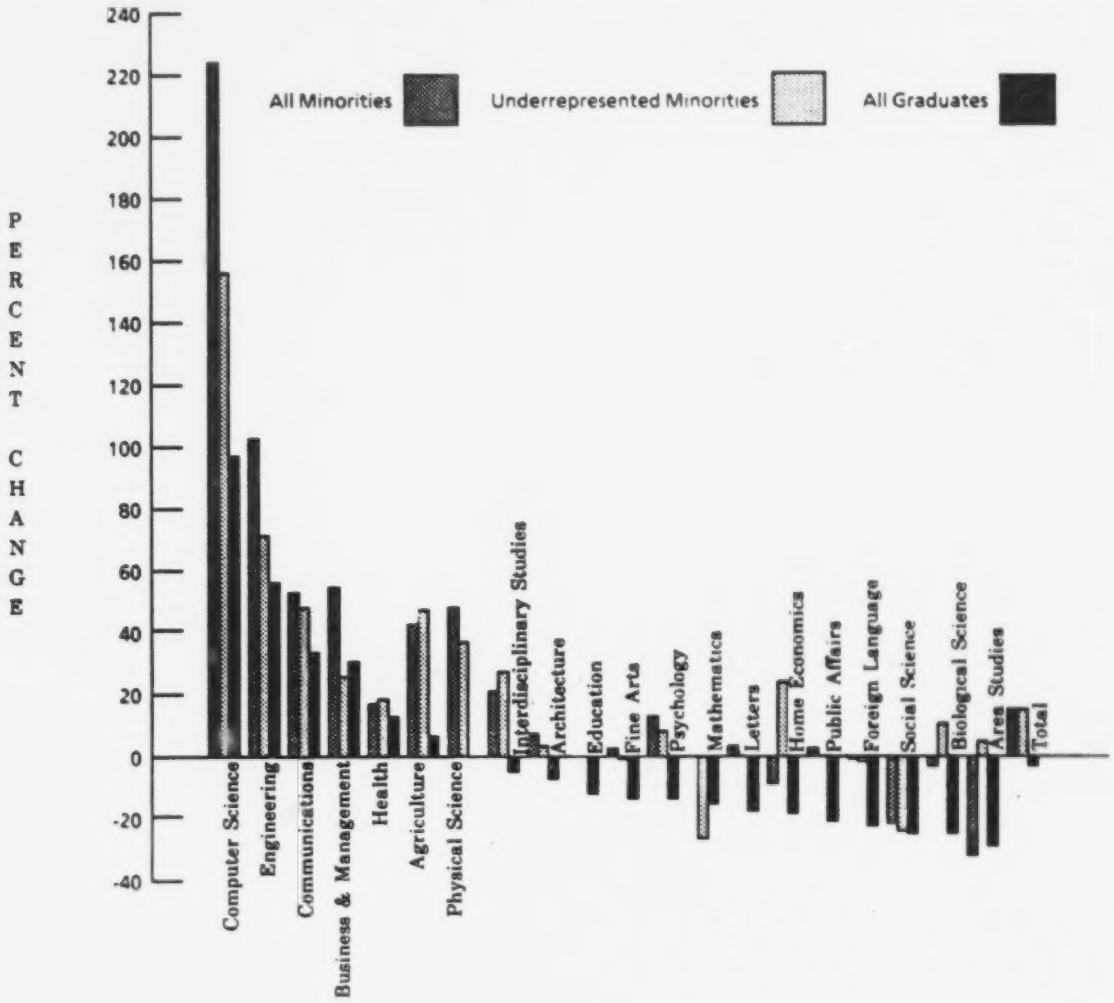
Source: California Postsecondary Education Commission.

DISPLAY 48 ***Percentage Change in the Number of Bachelor's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1980-81 to 1985-86***



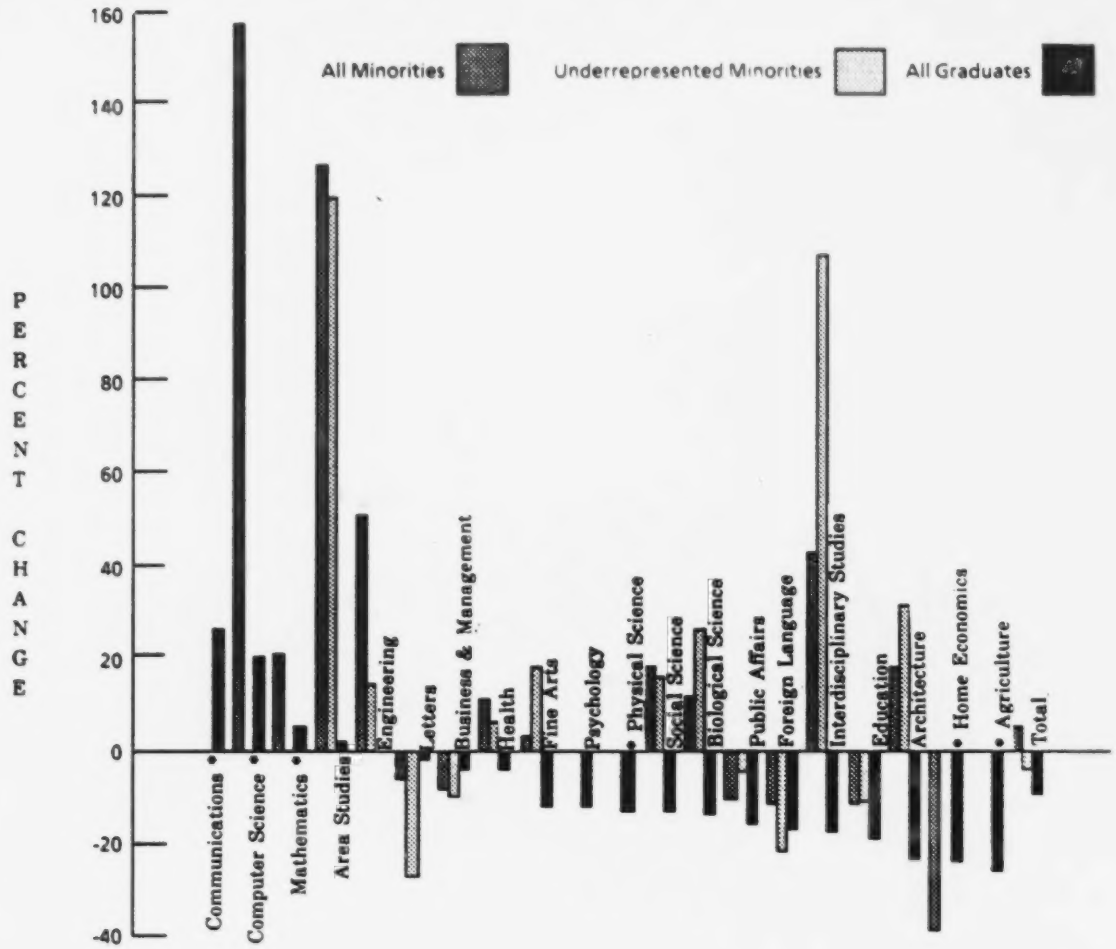
Source: California Postsecondary Education Commission.

DISPLAY 49 *Percentage Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1976-77 to 1980-81*



Source: California Postsecondary Education Commission.

DISPLAY 50 Percentage Change in the Number of Master's Degrees Awarded in 20 Fields of Study to All Minorities, Underrepresented Minorities, and All Graduates by the University of California and the California State University, 1980-81 to 1985-86



* Numbers too small to permit percentage comparison for all minorities or underrepresented minorities.

Source: California Postsecondary Education Commission.

Appendix F *Foreign and Resident Student Degrees*

DISPLAY 51 **Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81** 103

DISPLAY 52 **Percentage Change in Bachelor's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86** 104

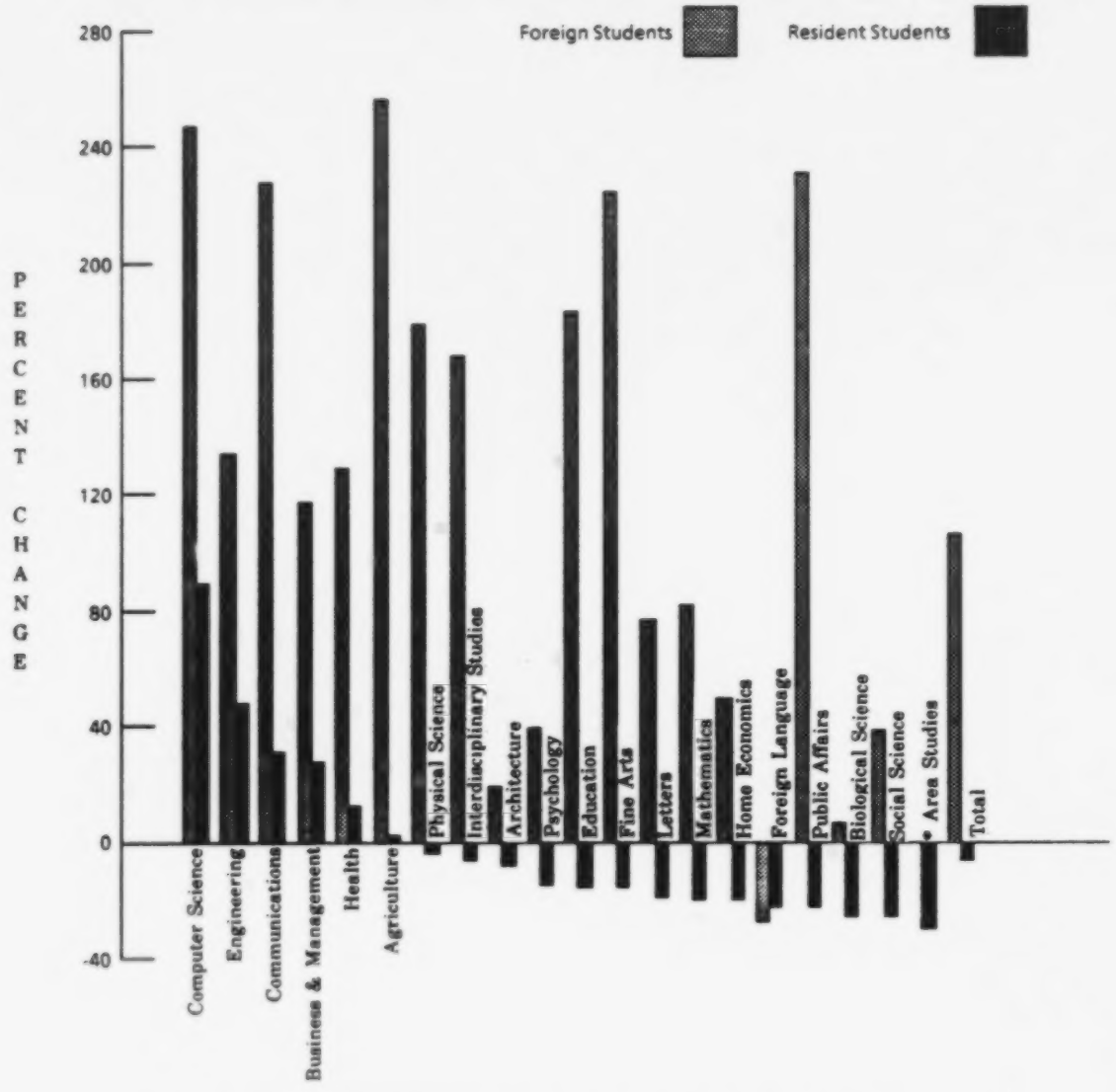
DISPLAY 53 **Percentage Change in Master's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81** 105

DISPLAY 54 **Percentage Change in Master's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86** 106

DISPLAY 55 **Percentage Change in Doctoral Degrees Awarded in Selected Disciplines to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81** 107

DISPLAY 56 **Percentage Change in Doctoral Degrees Awarded in Selected Disciplines to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86** 108

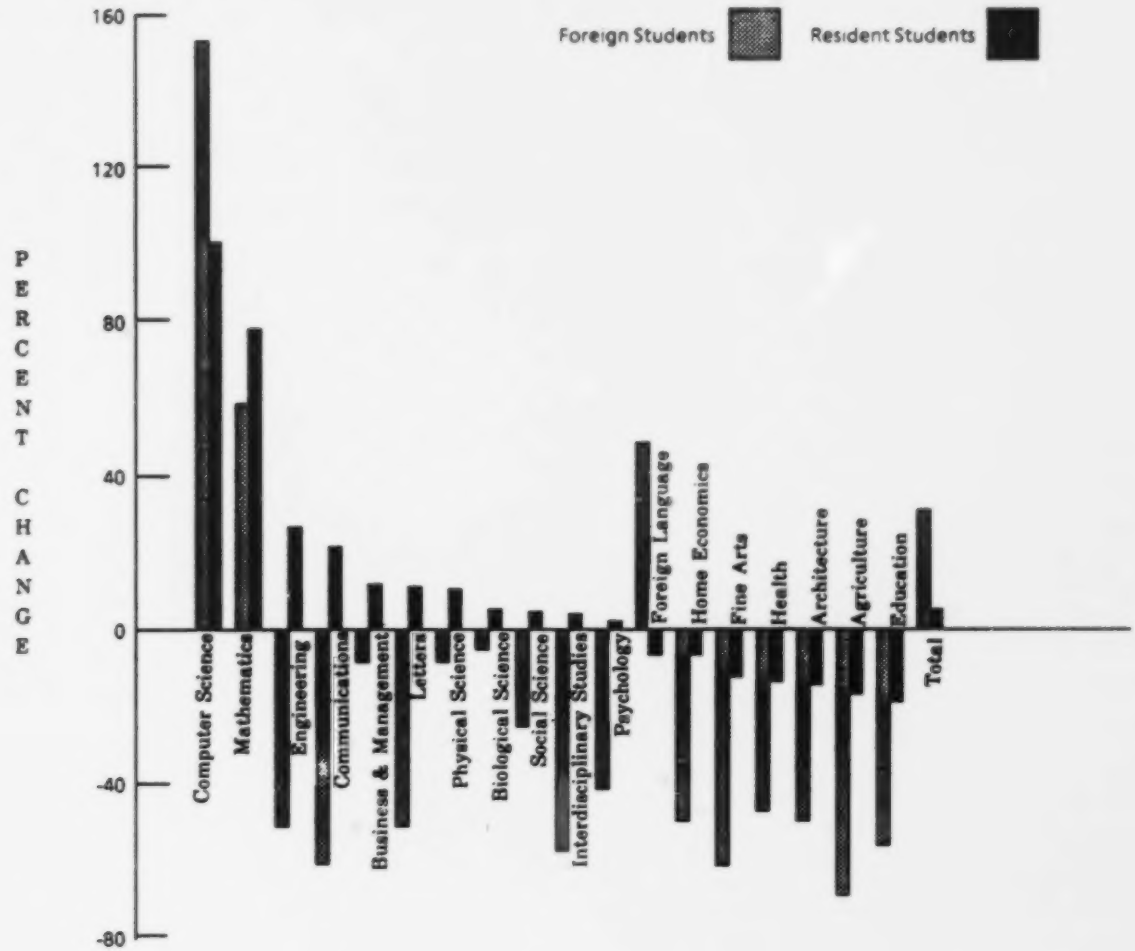
DISPLAY 51 Percentage Change Bachelor's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81



* Numbers too small to permit percentage comparison for foreign students or resident students.

Source: California Postsecondary Education Commission.

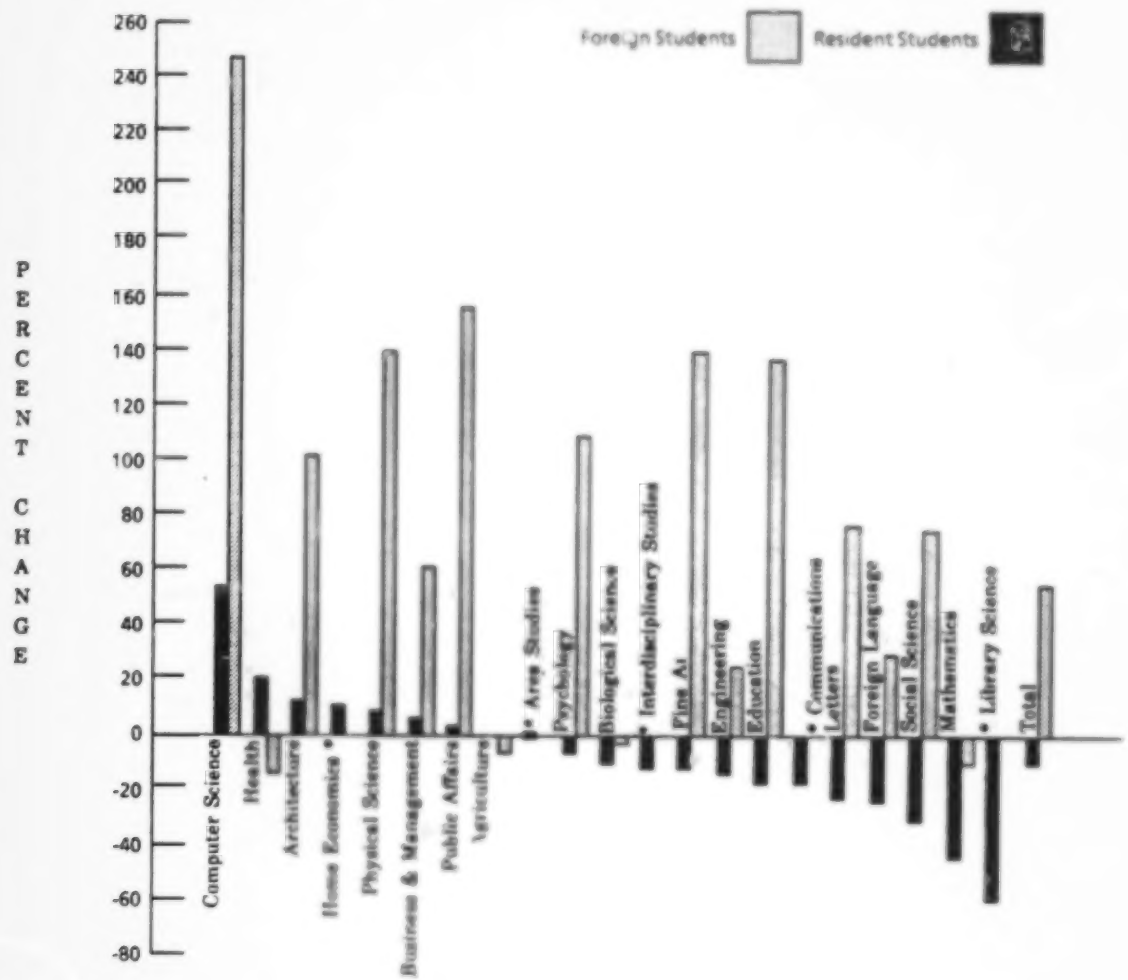
DISPLAY 52 ***Percentage Change Bachelor's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86***



Source: California Postsecondary Education Commission.

104

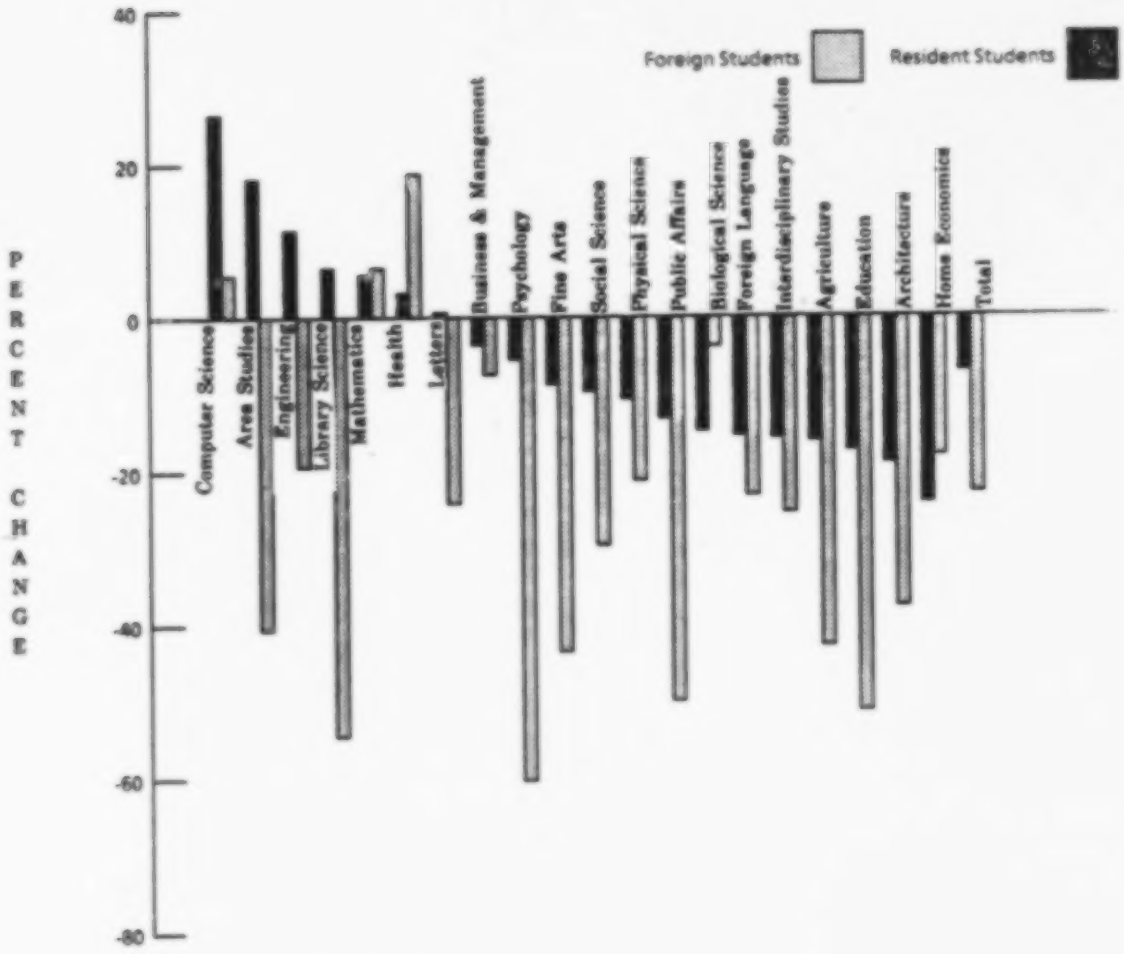
DISPLAY 53 ***Percentage Change Master's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81***



* Numbers too small to permit percentage comparison for foreign students or resident students.

Source: California Postsecondary Education Commission.

DISPLAY 54 *Percentage Change Master's Degrees Awarded in 20 Fields of Study to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86*



Source: California Postsecondary Education Commission.

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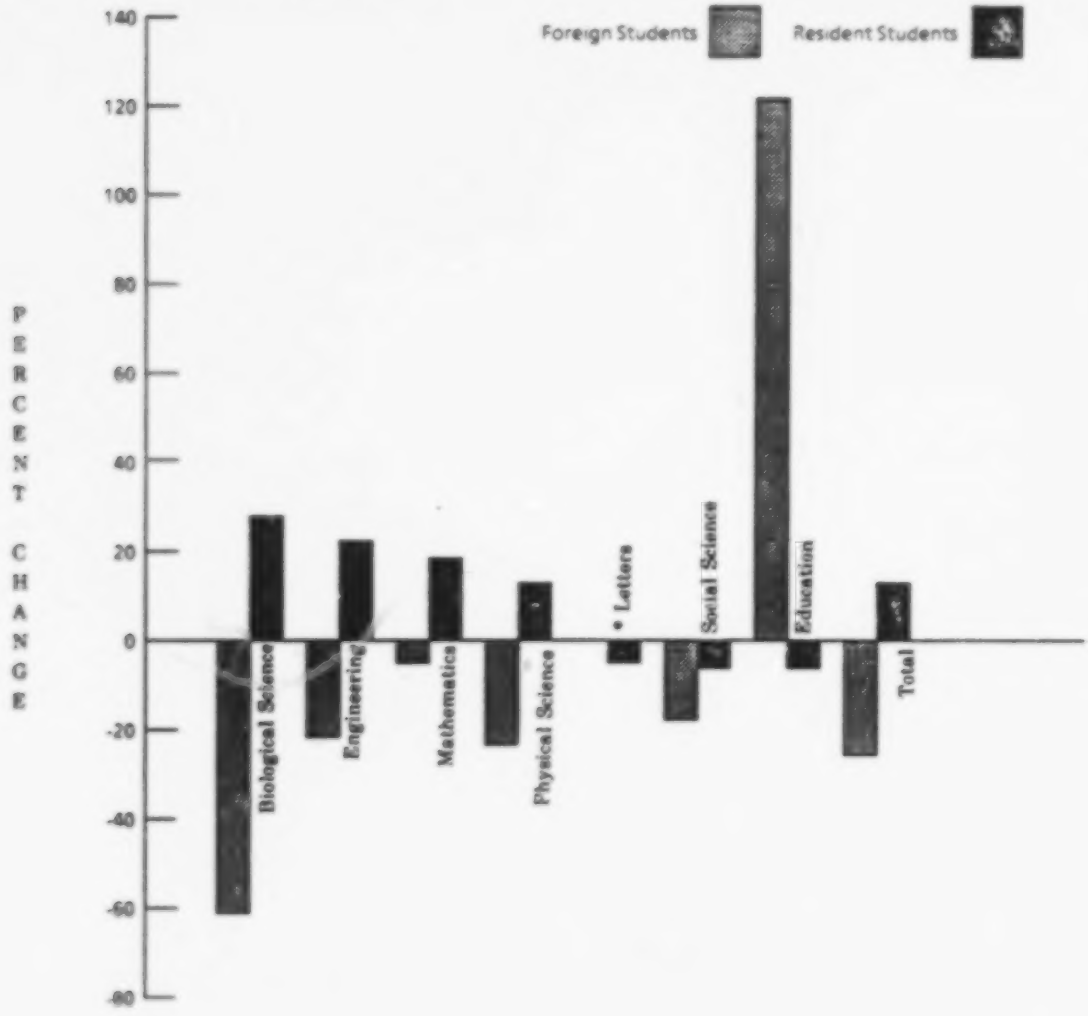
DISPLAY 55 *Percentage Change Doctoral Degrees Awarded in Selected Disciplines to Foreign Students and Resident Students by the University of California and the California State University, 1976-77 to 1980-81*

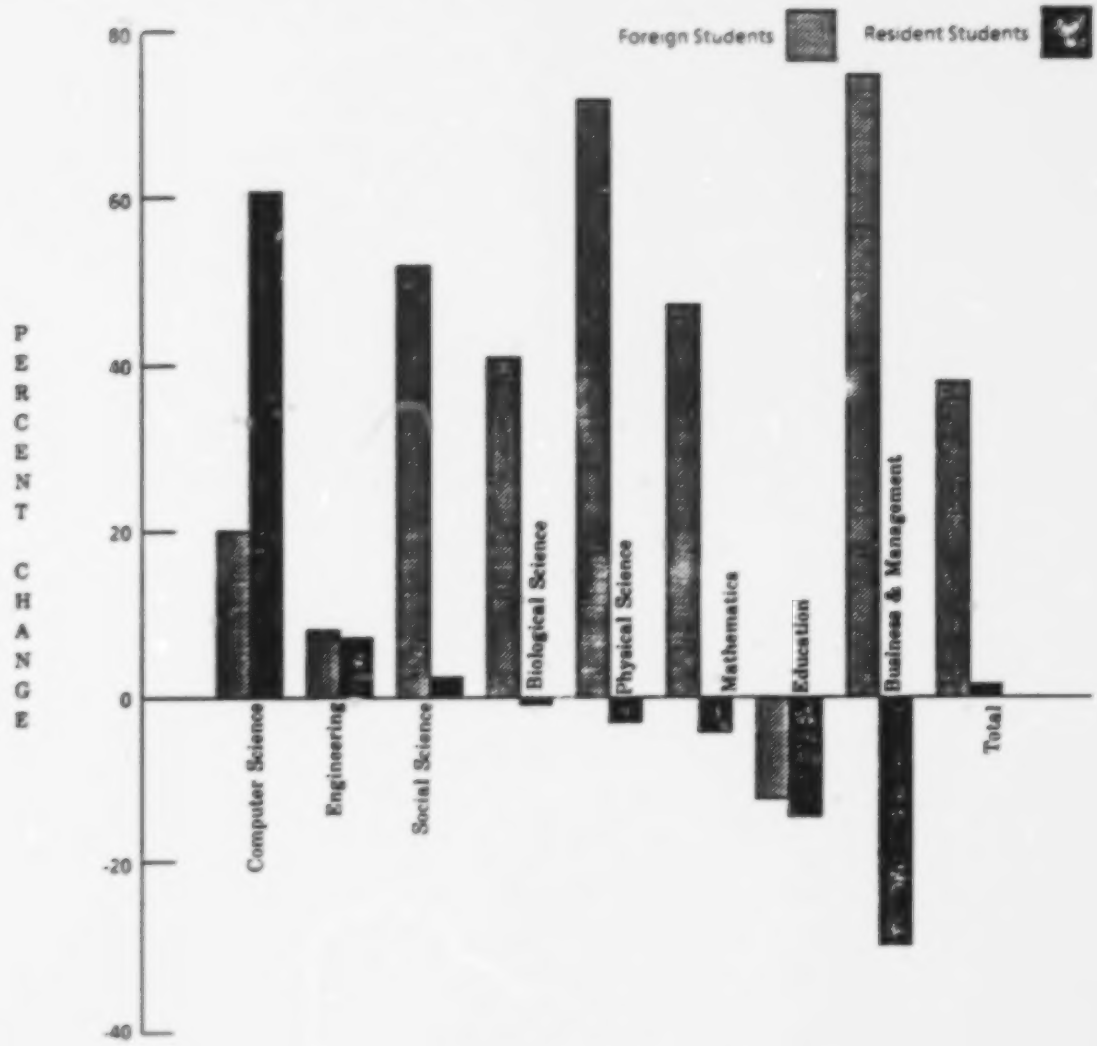


* Numbers too small to permit percentage comparison for foreign students or resident students.

Source: California Postsecondary Education Commission.

107

DISPLAY 56 ***Percentage Change Doctoral Degrees Awarded in Selected Disciplines to Foreign Students and Resident Students by the University of California and the California State University, 1981-82 to 1985-86***



* Numbers too small to permit percentage comparison for foreign students or resident students.

Source: California Postsecondary Education Commission.

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

THE California Postsecondary Education Commission is a citizen board established in 1974 by the Legislature and Governor to coordinate the efforts of California's colleges and universities and to provide independent, non-partisan policy analysis and recommendations to the Governor and Legislature.

Members of the Commission

The Commission consists of 15 members. Nine represent the general public, with three each appointed for six-year terms by the Governor, the Senate Rules Committee, and the Speaker of the Assembly. The other six represent the major segments of postsecondary education in California.

As of March 1987, the Commissioners representing the general public are:

Seth P. Brunner, Sacramento
C. Thomas Dean, Long Beach, *Chairperson*
Seymour M. Farber, M.D., San Francisco
Cruz Reynoso, Los Angeles
Lowell J. Paige, El Macero
Roger C. Pettitt, Los Angeles
Sharon N. Skog, Mountain View, *Vice Chairperson*
Thomas E. Stang, Los Angeles
Stephen P. Teale, M.D., Mokelumne Hill

Representatives of the segments are:

Yori Wada, San Francisco; representing the Regents of the University of California

Claudia H. Hampton, Los Angeles; representing the Trustees of the California State University

Arthur H. Margosian, Fresno; representing the Board of Governors of the California Community Colleges

Donald A. Henricksen, San Marino; representing California's independent colleges and universities

Harry Wugalter, Thousand Oaks; representing the Council for Private Postsecondary Educational Institutions

Angie Papadakis, Palos Verdes; representing the California State Board of Education

Functions of the Commission

The Commission is charged by the Legislature and Governor to "assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

To this end, the Commission conducts independent reviews of matters affecting the 2,600 institutions of postsecondary education in California, including Community Colleges, four-year colleges, universities, and professional and occupational schools.

As an advisory planning and coordinating body, the Commission does not administer or govern any institutions, nor does it approve, authorize, or accredit any of them. Instead, it cooperates with other state agencies and non-governmental groups that perform these functions, while operating as an independent board with its own staff and its own specific duties of evaluation, coordination, and planning,

Operation of the Commission

The Commission holds regular meetings throughout the year at which it debates and takes action on staff studies and takes positions on proposed legislation affecting education beyond the high school in California. By law, the Commission's meetings are open to the public. Requests to address the Commission may be made by writing the Commission in advance or by submitting a request prior to the start of a meeting.

The Commission's day-to-day work is carried out by its staff in Sacramento, under the guidance of its executive director, William H. Pickens, who is appointed by the Commission.

The Commission issues some 30 to 40 reports each year on major issues confronting California postsecondary education. Recent reports are listed on the back cover.

Further information about the Commission, its meetings, its staff, and its publications may be obtained from the Commission offices at 1020 Twelfth Street, Third Floor, Sacramento, CA 98514-3985; telephone (916) 445-7933.

MAJOR GAINS AND LOSSES: PART TWO

California Postsecondary Education Commission Report 87-26

ONE of a series of reports published by the Commission as part of its planning and coordinating responsibilities. Additional copies may be obtained without charge from the Publications Office, California Postsecondary Education Commission, Third Floor, 1020 Twelfth Street, Sacramento, California 95814-3985.

Recent reports of the Commission include:

87-20 Background Papers of the ACR 141 Task Force on Funding Excellence in Higher Education (March 1987)

87-21 Educational Costs in Technical and Professional Fields of Study: A Report to the Legislature in Response to Assembly Concurrent Resolution 38 (Chapter 50 of the Statutes of 1986) (April 1987)

87-22 Update of Community College Transfer Student Statistics, University of California and the California State University, Fall 1986 (April 1987)

87-23 Annual Report on Program Review Activities, 1985-86: The Eleventh in a Series of Reports to the Legislature and the Governor on Program Review by Commission Staff and California's Public Colleges and Universities. (June 1987)

87-24 Looking to California's Pacific Neighborhood: Roles for Higher Education. A Report to the Governor and Legislature in Response to Assembly Concurrent Resolution 82 (1986) (June 1987)

87-25 Institutional Reports on Pacific Rim Programs: Submissions by the California Community Colleges, the California State University, and the University of California in Response to Assembly Concurrent Resolution 32 (1986) (June 1987) (A supplement to Report 87-24.)

87-26 Major Gains and Losses: Part Two. A Staff Report on Shifts Since 1976 in the Popularity of Various Academic Disciplines as Fields of Study at California's Public Universities (June 1987)

87-27 Faculty Salary Revisions: A Revision of the Commission's 1985 Methodology for Preparing Its Annual Reports on Faculty and Administrative Salaries and Fringe Benefit Costs (June 1987)

87-28 Comments on the Second Draft of the Master Plan for Postsecondary Education, 1987 - 2002, by William H. Pickens. Executive Director's Report, June 1987 (June 1987)

87-29 Evaluation of the Commission's Office Automation System: A Post-Implementation Evaluation Report to the California State Department of Finance (June 1987)

87-30 California Colleges and Universities. [An alphabetical list of names, addresses, and telephone numbers.] (June 1987)

87-31 California Colleges and Universities Grouped by County (June 1987)

87-32 California Community College Districts and Colleges [An alphabetical list of districts and the colleges they operate, with district addresses, telephone numbers, and names of superintendents.] (June 1987)

87-33 Information Manual: A Guide to the Commission, Its Policies, Procedures, and Members (September 1987)

87-34 Information Manual: A Guide to the Commission, Its Policies, Procedures, Members, and Staff [A revision of Report 87-33 designed exclusively for staff orientation purposes.] (September 1987)

87-35 Appropriations in the 1987-88 State Budget for the Public Segments of Higher Education: A Staff Report to the California Postsecondary Education Commission (September 1987)

87-36 Supplemental Report on Academic Salaries, 1986-87: A Report to the Governor and Legislature in Response to Senate Concurrent Resolution No. 51 (1965) and Subsequent Postsecondary Salary Legislation (September 1987)

87-37 Improving Student Performance Reporting, Review and Epilogue: The Final Report of the Commission's Project on Transforming Student Academic Performance Data into Useful Information (September 1987)

87-38 California College-Going Rates, 1986 Update: The Tenth in a Series of Reports on New Freshmen Enrollment at California's Colleges and Universities by Recent Graduates of California High Schools (September 1987)